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AUTHOR

ADVISOR:
Reidar J. Mykletun

Student number:

214505
.....

Name:

Julide Ceren Ahi
.....

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Norwegian School of Hotel Management

Master's Thesis

Risk Perception of Festival Audience: An Application of Psychometric Paradigm

Julide Ceren Ahi

June, 2013

Abstract

The purpose of this study was to investigate the perceived risk level indicated by audiences for six contemporary hazards in an open door music festival, seeing as it is an overlooked issue in the literature. In order to measure the risk perceptions of participants The Psychometric Paradigm Model was utilized together with the perceived controllability arguments of Optimism Bias Theory.

The data was collected from 230 participants of Landstreff 2013 Stavanger through online survey in cooperation with Kongeparken. The results have illustrated that the Norwegian teenagers who participated in the survey demonstrated probabilistically correct risk estimation, in contrast to the Psychometric Paradigm's main hypothesis. The participants pointed to catastrophic outcome and uncontrollability as the most significant predictors of perceived risk. Another important trend in the responses was the overall low risk mean ratings emerging from the study; none of the hazards stood out as having a high risk. While the general low trend in the responses was attributed to the average age of the population and trust in Norwegian society, the logical risk estimation was examined in a successful risk communication framework.

A significant aspect of the study was the perceived controllability and perceived risk association observed across the responses, implying presence of optimism bias. This finding mattered especially for the excessive alcohol consumption item considering its reported link to other hazards in the given research, providing important hints for the sector.

Key words: risk perception, festivals, Psychometric Paradigm, Russefeiring

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Introduction

It is claimed that modern men are pre-occupied with the notion of risk (Renn, Burns, Kasperson, Kasperson, & Slovic, 1992) since risk has become an integral part of human action; we are surrounded by various kinds of risks in the daily life (Beck, 1992). Considering this fact, the issue of how people perceive the risks surrounding them holds significant importance in order to make sound policy decisions (Marris, Langford, Saunderson, & O’Riordan, 1997) and for understanding the opposition to new technologies (Sjöberg, 2000a). Furthermore, it was also suggested that public risk perceptions have a great impact on predicting the behaviour for risky activities (Jenkin, 2006), which is an important aspect of this study.

The risk perception discussions have emerged from the nuclear debate in the 1960s (Sjöberg, 2000a) and entered the tourism field in the 1980s, which has become a crucial indicator of traveller behaviour (Björk & Kauppinen-Räsänen, 2011). While most of the studies in tourist risk perception field have focused on western tourists travelling to unstable or unfamiliar parts of the world, there have not been as many studies investigating the special event attendees’ and especially OMF (open door music festival) audiences’ risk perceptions, even though “there is sufficient evidence to indicate that music events including outdoor music festivals are associated with an increased risk of public health issues” (Arbon, 2003, as cited in Earl, Parker, & Capra, 2005a, p.37).

The former research in the festival field outlined the main safety issues (e.g. Mykletun, 2011) and the public health issues (e.g. Earl & van der Heide, 2001). Nevertheless, there have not been any studies that are based on participants’ perceptions on highly up to date hazards that can take place in the festivals.

In this study, I aimed to investigate the risk levels associated to six actual hazards that are likely to come across in a festival setting, using the Psychometric Paradigm Theory and the psychometric scales. The reason for choosing only six hazards from an extensive list was due to the intention for examining the awareness for most current problems of all special events nowadays within Psychometric Paradigm's discussions. While some hazards picked are directly linked to individuals' perception (e.g. excessive alcohol consumption) as an indicator of personal control, some of them are relatively limited in the means of individual control (e.g. criminal acts).

The research questions of the study are as follows:

- 1) What is the level of riskiness attached to each hazard?
 - a) Are low probability/high consequence hazards rated as more risky than statistically more probable hazards as Psychometric Paradigm discusses?
 - b) Are affect heuristic and availability heuristic present within responses?
 - c) Does the choice of accommodation influence overall risk perception?
 - d) Are there any significant associations between excessive alcohol consumption and other hazards?
- 2) How salient is the perceived controllability for overall perceived risk in an open door music festival setting?
 - a) Is controllability an important predictor for overall perceived risk?
 - b) Are there any association between the perceived level of "control" and the perceived level of "overall riskiness" for the given hazards?
- 3) Is there a relationship between knowledge and perceived risk as Psychometric Paradigm asserts?

By this research, I aim to point out the possible negligence of the festival audiences for highly probable hazards surrounding them in the festival settings and provide information regarding their awareness level on the selected hazards, deriving from the risk perceptions attached to them. I believe that this study can be a simple guide for the event managers for increasing the attention given to the neglected issues by the participants.

1. Literature Review

1.1. Definition of risk

Everyone engage in dangerous events at some point of their life, and this fact has prompted a substantial effort among the academics to understand how people understand and perceive risk (Sjöberg, Moen, & Rundmo, 2004). The concept of risk is rather comprehensive; as Leigh (1999) addresses risk does not cover only for physically dangerous activities like skydiving but also everyday activities such as driving a car; therefore risk is applicable to nearly every human action.

The concept of risk has its roots in the Italian expression of “*ricicare*” which was in use in order to demonstrate the opportunities and dangers that merchant vessels were exposed to in the foreign seashores back in the 13th century (Bernstein, 1996 as cited in Mykletun, 2011). Even though the risk concept rooted deeply in history, Renn (1998) emphasizes there is no commonly accepted definition of risk by the society or the scientific community; nevertheless there is one element in common for all definitions, as Rayner & Cantor (1987, p.4) argue: “however and wherever it is discussed, it seems that there is a consensus that the essence of risk consists of the probability of an adverse event and the magnitude of its consequences”.

There are many definitions of the term “risk” available in the literature. Rake (2012, p.149) denotes “risk is traditionally understood as the potential negative impact of an activity and some characteristics of value that may arise from some present process or future event”. Brun, Wolff, & Larsen (2011, p.388) define the risk as “the probability of an adverse event weighted by the magnitude of its consequences”; Rosa (2003, p.56) describes the risk as “a situation or an event where something of human value (including humans themselves) is at stake and where the outcome is uncertain”.

It is of great importance to express the difference between the terms risk and uncertainty: While risk is defined as “a state in which the number of possible events exceeds the number of events that will actually occur, and some measure of probability can be attached to them” (Stone & Gronhaug, 1993 as cited in Quintal, Lee, & Soutar, 2010, p.798), uncertainty has “no probability attached to it; it is a situation in which anything can happen and one has no idea what” (Hofstede, 2001 as cited in Quintal et al., 2010, p.798).

Apart from various definitions of risk in the literature, there are also different types of risks discussed. One of the most commonly stressed risk types by the scholars is the objective risk. According to Rundmo (1996, p.198), objective risk is “the probability of the *occurrence* of a hazardous event”. Renn (1992) defines the objective risk as measured probability of a well-defined adverse event: it is calculated from statistics and probability distributions, therefore, the objective risk source may vary in different parts of the world concerning the statistics; the risk of getting hit by avalanche is higher in some places than others (Oltedal, Moen, Klempe, & Rundmo, 2004).

On the other hand the ‘subjective risk’ or ‘personal risk’ is strongly linked to unrealistic optimism term which will be discussed further. Hansson (2010) denotes that subjective risk is characterized by personal judgment without connection to physical world’s facts. Oltedal et al. (2004) stresses that personal risk must be distinguished from general risk since people tend to estimate the general risk to be larger than the personal ones. On the contrary, Slovic & Weber (2002) discuss that terms like objective risk and real risk are illusionary and developed by human beings in order to understand and deal with uncertainties of life and further discuss that “risk does not exist ‘out there’, independent of our minds and cultures, waiting to be measured” (p.5).

1.2. Risk Perception

Sjöberg (1999) discusses that the people's perception and reaction towards risk have become a major issue for the governments in policy making. Accordingly Peters & Slovic (1996) argue that people respond to hazards according to how they perceive it, therefore, risk perception stand for great importance to industries and governments trying to assess and implement new technologies. Further discussing the crucial place risk perceptions hold in today's world, Jenkin (2006) denote that public risk perceptions influence budgets, agendas and priorities of regulatory organizations and also it enables the researchers to understand how these perceptions shape the public behaviour. Correspondingly, public risk perception's importance is highly acknowledged for understanding citizen response to risk management procedures (Frewer, 2004).

Although risk perception has been studied within consumer research since 1960s, when the nuclear debate has broken out, it still receives attention (Björk & Kauppinen-Räsänen, 2011; Sjöberg, 2000a) regarding its link to a range of disciplines, including geology, sociology, psychology, marketing and tourism (Quintal et al., 2010). Highlighting the importance of risk research in contemporary agenda, Sjöberg et al. (2004, p.8) denote that "parliamentarians in Sweden and Norway now devote three times as much attention to risk issues as they did in the first half of the 60s, as reflected in their submitted private bills".

Considering they have been in the agenda for many years now, risky options surprisingly have never been totally agreed upon by different sections of the society due to varied reasons according to the nature of the problems. One of the basic grounds for risk perception to be under debate is highlighted by Fischhoff, Slovic, Lichtenstein, Read, & Combs (1978, p.127) is that "the reduction of risk typically entails reduction of benefit, thus posing serious dilemmas for society". As Finucane, Alhakami, Slovic & Johnson (2000) express "the nature of gains attained

from pursuit of a hazardous activity or technology is qualitatively different from the nature of their risks". Thus, health and environmental scientists, professional risk managers and the general public strongly disagree about the seriousness of many risks (Renn, 2004) considering that "public perceptions of risk have often been dismissed on the basis of 'irrationality', and have tended to be excluded from policy of risk processes by risk assessors and managers" (Frewer, 2004, p. 391). Likewise, Sjöberg et al. (2004, p.8) state "risk perception came to be seen as an obstacle to rational decision making", since people have tendency to perceive risk as possible where there is actually none according to the experts (Sjöberg et al., 2004).

Regarding this dilemma between experts and lay public, Renn (1998, p.49) points at the ethical problems rising: "Who has the right to set standards that determine the boundary between tolerable and intolerable risk levels?". It is argued by many scientists that, since it is the people who are under direct threat of risky activities, the priority for determining the tolerable risk level should be given to them (Renn, 1998).

The word 'perception' is commonly used within risk research for explaining how one understands and interprets risk as Jungermann & Slovic (1993, as cited in Renn, 2004, p.406) denotes: "perception as used in cognitive psychology applies to the mental processes through which a person takes in, deals with and assesses information from the environment (physical and communicative) via senses". It is vital that while dealing with risk perceptions, there are some definitions that require to be clarified; investigating risk perceptions one should not examine it the same as "worry" or "risk assessment".

Borkovec, Ray, & Stöber (1998) address that "worry distinctively involves a predominance of verbal thought whose function appears to be the cognitive avoidance of threat".

Therefore, it is a cognitive activity with emotional content, which have been found to be moderately related to risk perception through empirical studies (Rundmo, 2002; Sjöberg, 1998, 2006, as cited in Brun, Wolff , & Larsen, 2011). Furthermore, Sjöberg (1998, p.85) discusses “perceived risk level of risk calls for a more intellectual judgment and worry tends to refer to emotional reactions and these two are therefore not the same and need not be strongly correlated”.

Defining the difference between risk assessment and risk perception, Gierlach, Belsher, & Beutler (2010, p.1539) argue that “risk assessment is the objective assessment of the actual risk to which one is subject based on past occurrences”; risk perception, on the other hand, “is an inherently psychological construct – a subjective judgment about the felt likelihood of encountering hazards when objective information is minimal”. The authors further explain that risk perceptions are highly related to internal factors that are mostly quite discrepant from the objective evidence of actual risk (Gierlach et al., 2010).

Many different scales in order to measure risk perception phenomenon have been suggested in the literature over the years. Bontempo, Bottom, & Weber (1997) list the risk perception models as Axiomatic Models, Psychometric Models, Hybrid Models (using aspects of both Axiomatic and Psychometric Models) and Cultural Models. Nevertheless, Rippl (2002) notes that only two of these approaches have dominated the risk research area: Psychometric Paradigm and Cultural Theory. While Psychometric studies mainly relied on cognitive processes (Fischhoff et al. 1978), Rippl (2002) denotes that Cultural Theory was based upon Douglas & Wildavsky’s (1982) arguments claiming “individuals are embedded in a social structure and that the social context of individuals shapes their values, attitudes, and worldviews”(Rippl, 2002, p.148). According to Dake (1991, 1992, as cited in Peters & Slovic, 1996, p. 1430) “worldviews,

defined as generalized attitudes toward the world and its social organization, are ‘orienting dispositions’, serving to guide people’s responses in complex situations”; therefore they have been found, to be instrumental in determining a person’s risk attitudes and risk perceptions (Peters & Slovic, 1996).

These two approaches have been debated heavily and compared many times over the years; the works of Boholm (1996, 1998), Marris, Langford & O’Riordan (1998), Sjöberg (2000a, 2002a), Rippl (2002), and comprehensive studies of Norwegian University of Science and Technology, investigating the explaining power of the two approaches conducted by Oltedal et al. (2004) and Sjöberg et al. (2004) are to name just a few.

Even though both approaches received a fair share of critics and appraises, the focus of this research is going to be based upon Psychometric Paradigm, concerning that it was stressed many times that it is obviously superior to Cultural Theory in the means of explaining the variance in risk perception (Marris et al., 1998; Oltedal et al., 2004; Sjöberg, 2000a, 2000b, 2002a; Sjöberg & Wählberg, 2002). In addition, concerning the sample of this study, psychometrics scales are more applicable than cultural theory based on word views which will be further explained in the method section.

1.3. Psychometric Paradigm

Psychometric Paradigm, developed by psychologists (Marris et al., 1998), is an approach which “uses physical scaling and multivariate analysis techniques to produce quantitative representations or ‘cognitive maps’ of risk attitudes and perceptions” (Slovic, 1987, p. 281).

The early psychometric paradigm studies conducted by Fischhoff et al. (1978) pointed out that the experts and the ordinary people do not evaluate the risks same way: While the

experts tend to perceive the risks in a quantitative likelihood perspective with consequences, the laypeople use qualitative dimensions such as ‘dread’, ‘involuntariness’, ‘controllability’, ‘lack of knowledge about risk’, ‘catastrophic potential’, ‘severity of consequences’, ‘latency of the effects’, and ‘newness’ (Fischhoff et al., 1978; Marris et al., 1998). Explaining how these dimensions function, Slovic & Weber (2002, p.7) highlight the following:

Many of these qualitative risk characteristics that make up a hazard’s profile tend to be highly correlated with each other, across a wide range of hazards (e.g. hazards rated as “voluntary” tend also to be rated as “controllable” and “well-known”, hazards that appear to threaten future generations tend also to be seen as having catastrophic potential.

Following the early psychometric studies, it was suggested that psychological dimensions of risk can be grouped under dread risk and unknown risk (Peters & Slovic, 1996). According to Loewenstein, Weber, Hsee, & Welch (2001, p.269); “dread refers to the extent perceived lack of control, feelings of dread, and perceived catastrophic potential”, on the other hand, “unknown risk is the extent to which the hazard is judged to be unobservable, unknown, new or delayed in producing harmful impacts”. Gierlach et al. (2010, p.1540) clarifies “the relationship between those two factors largely determines how severely individuals either exaggerate or minimize their judgments of risk”. Slovic & Weber (2002) further explains that the hazards scoring high on both of these factors; arouse more perceived risk and greater public concern for the particular hazard, connected to its signal value, which will be examined in the next chapters.

The two dimensional space based on Dread Risk Factor and Unknown Risk Factors were utilized in order to place the hazards on a “cognitive map” depicting a wide range of hazards (Siegrist, Keller, & Kiers, 2005). Following the first cognitive map designed by Fischhoff et al.

(1978), numerous studies applied this method to show how the different hazards are spread according to the qualitative attributes attached to them. One of successive works of the original work of Fischhoff (1978) was conducted by Slovic (1987), placing 81 hazards according to 18 qualitative risk dimensions. In his work, Slovic (1987) also provided an illustration of how the extraction of the qualitative dimensions works in a more explicit way as seen in Figure 1:

1.3.1. Heuristics and Biases

One of the most significant findings of the early psychometric studies was that when ordinary people were asked to guess the number of fatalities causing from different hazards, they had a tendency to overestimate sensational cases, such as botulism, tornadoes, and floods, and underestimate non-dramatic, quite killer ones such as stomach cancer, strokes and heart diseases (Lichtenstein et al, 1978). Examining this issue, Lichtenstein et al. (1978) link this tendency to Tversky & Kahneman's (1973) *availability heuristic* arguments, which will be discussed further, and comments the following:

In the context of lethal events, the concept of availability suggests that one's judgments will be influenced not only by direct experience with death and indirect exposure via movies, books, television, newspapers, and the like, but also by memorable characteristics of the different causes of death, such as sensationalism or vividness. Thus we might expect that the frequencies of dramatic events such as cancer, homicide, or multiple-death catastrophes, which tend to be publicized disproportionately, would be overestimated, while the frequencies of "quiet killers" would be underestimated. (p.552)

Heuristics are simply defined as the mental strategies employed by people in order to deal with the uncertainties of the world (Kahneman, Slovic, & Tversky, 1982, as cited in Slovic, 1987; Tversky & Kahneman, 1973). Sjöberg (2000a, p.2) addresses that "heuristics tradition relies heavily on a presumption that belief distortion is a matter of cognition".

Different from Tversky & Kahneman's (1973) perspective which investigates heuristics and biases in a cause and effect relationship, in his work Renn (1998) uses representativeness,

availability and anchoring, as three types of intuitive biases and composes the definitions as given in the table below :

Table 1. *Intuitive biases of risk perception*

Bias	Description
Availability	Events that come to people's mind immediately are rated as more probable than events that are less mentally available.
Anchoring effect	Probabilities are adjusted to cognitive routines or to the perceived significance of information.
Representativeness	Unique events experienced in person or associated with properties of an event are preferred over information on probabilities or relative frequencies when people make predictions or inferences about probabilities.

Note: Reprinted from "The role of risk perception for risk management" by O. Renn (1998), *Reliability Engineering & System Safety*, 59(1), p.54

Referring to the main discussion of psychometric studies suggesting the perception difference between laypeople and the experts, one of the acknowledged names of risk concept, Beck (1992) discusses that there is no expert when it comes to risks; everybody is somewhat reliant on social expectations and values which generate biases. Furthermore, more recent scientific studies have demonstrated that the experts' risk perceptions contain intuitive biases and use of heuristics as the non-expert people (Sjöberg, 2002b), bringing down the lay people and experts classifications.

Tversky & Kahneman (1973, as cited in Sjöberg, 2000a) discuss, of the three heuristics – representativeness, availability, anchoring- availability is the one often argued as most important for understanding risk perception. Boholm (1998, p.137) explains “availability heuristic relates to what people *remember*, and not to what actually has taken place. It is cognitive scheme for processing information, and not an imprint of the material world upon the mind”.

Correspondingly, it is stated that the basic hypothesis of psychometric paradigm is that risk perception is highly individual (Sjöberg et al., 2004). Nevertheless, in addition to the highly individual judgments availability heuristic provides, the most important impact of this heuristic on risk perceptions is the systematic biases they lead to (Slovic, 1987; Tversky & Kahneman, 1973) by using the strength of association as a basis for the judgment of frequency (Tversky & Kahneman, 1973).

Slovic, Fischhoff & Lichtenstein (1980) stress the significance of availability heuristic in the public arena regarding the biasing effects of memorability may pose a barrier to open discussions of risk. Tversky & Kahneman (1973) denote that this tendency derive from the fact that availability heuristic can emerge independent from actual frequency depending on various other factors.

In relation to the stressed importance of availability heuristic for understanding risk perception, Psychometric Paradigm claims that media has great power on public’s risk perception (Sjöberg et al., 2004). Highlighting the crucial role of media presentation of risks, Boholm (1998) states that media influences evaluation of various risks by amplifying some risks while attenuating the others. The tendency of the media for making dramatic news more salient (Wählberg & Sjöberg, 2000) can be examined with a connection to Social Amplification of Risk Framework.

1.3.2. Social Amplification of Risk Framework

Kasperson et al. (1988) remark that when people lack the firsthand experience for risks they get information either from other people or from the media and “information flow becomes a key ingredient in public response and acts as a major agent of amplification” (p.184). Accordingly, this framework refers to “the *process* through which a hazardous event leads to direct and indirect societal impacts” (Gierlach et al., 2010, p.1540).

Renn (1998, p.59) denotes that “events pertaining to hazards interact with psychological, social, institutional and cultural processes in ways that can heighten or attenuate individual and social perceptions of risk and shape risk behaviour”. Likewise, Jenkin (2006, p.4) states that “risk amplification is concerned with factors, both personal and social, that create either a heightened or lowered sense of risk within a society”. Therefore, it is of enormous concern how these “events pertaining to hazards” are presented to the public through media channels, since they eventually lead “to *interpretation* of the risk – the attribution of *meaning* to the event- and subsequent societal change” (Kasperson, Kasperson, Pidgeon, & Slovic, 2003 as cited in Gierlach et al., 2010, p.1540). Concerning the resources the media holds over people’s risk perception, it is often seen as a scapegoat (Sjöberg et al., 2004), which “gives infinitely more attention to low-probability-high-consequence events than to frequently occurring, unspectacular or even undetectable events which accumulatively do much more damage to human health” (Cohen, 1985, p. 2), while sacrificing objectivity for sensationalism (Wählberg & Sjöberg, 2000). Thus, Renn (1998) denotes that many technical experts have been arguing public risk perceptions are misguided by sensational press coverage, which can lead to neglecting the preparations of higher probability yet not enough stressed risks.

According to social amplification theory, the signal values of the risks hold great importance for understanding risk perception (Jenkin, 2006; Slovic, 1987; Slovic & Weber, 2002). Slovic, Lichtenstein, & Fischhoff (1984, p. 464) explain that “the societal impact of an accident is determined to an important degree by what it signifies or portends” and further discuss that even a small accident can have great signal value if it entails for probable future repetition. According to Slovic (1987), the informativeness or “signal potential” of an event and its potential social impact are related to the hazard characteristics: it is discussed that, while incidents in familiar systems such as transportation hazards present low signal value, even small incidents that involve unfamiliar systems such as DNA labs or nuclear waste repositories present high signal value (Slovic & Weber, 2002).

Jenkin (2006) exemplifies 9/11 as extremely high in signal considering that it was taken as an evidence for future attacks to occur. Correspondingly, Slovic & Weber (2002) emphasize the guidance role of signals in explaining the strong response to terrorism: since the risks associated with terror are evaluated as poorly understood and catastrophic, terrorist attacks can be seen as future disaster in any part of the world leading to deep societal impacts. In a Norwegian context, the unfortunate events of Oslo bombings and Utøya shootings in 2011 can be discussed in a high signal event framework.

1.3.3. Risk Perception and Optimism Bias

Apart from the previously explained intuitive biases, another form of distorting one’s perceptions of risk is the **optimism bias**. Although optimism bias theories are independent from Psychometric Paradigm Model, it can provide significant assistance for understanding risk perception through psychometric studies due to its link to perceived control which will be discussed further.

Explaining the optimism bias, it is discussed that self-protective behaviour is voluntary and whether an individual will take cautions to protect self from hazards is highly dependent on how these hazards are perceived; therefore the subjective estimate of risk becomes more important than the objective facts for the individual (DeJoy, 1989).

The founder of the concept, Weinstein (1980), describes optimism bias as the general people belief that asserts “negative events are less likely to happen to them than to others” (p.807). Therefore optimism bias briefly refers to the belief that “it won’t happen to me” which is related to defensive denial, downward comparison, egocentrism (Caponecchia, 2012; Weinstein, 1987) and also the lack of experience with particular events (DeJoy, 1989). It is proposed that what is so crucial about optimism bias is; it’s observed in both genders, in all age and education levels (Weinstein, 1980; 1987, as cited in Sjöberg et al., 2004).

Harris (1996) asserts a relationship between perceived controllability and optimism bias, and further discusses “the propensity to perceive events to be controllable may make it one of the more pervasive causes of optimistic bias” (p. 10). Correspondingly, Sjöberg et al. (2004) argues that research have shown that people tolerant more risk when they engage in voluntary behaviour which is related to the sense of controllability. Accordingly, in former research McKenna (1993) demonstrated that people perceive less risk when they are in the driver seat, which possesses a degree of control, than the perceived risk when they are the passenger.

Former optimism bias research demonstrated that culture might be one of the determinants in this phenomenon. Olstedal et al. (2004) suggest that the cultural adherence of people can influence the optimism degree since “the benefits of maintaining positive illusions presuppose certain cognitive or motivational tendencies that might be specific to particular cultures” (Heine & Lehman, 1995, p. 595). For instance in a comparative study, Heine &

Lehman (1995) concluded that independent cultures, represented by Canadians in the study, have more tendency for optimism bias and they perceive themselves “better off”(Gierlach et al., 2010, p.1541) when compared to Japanese people, who represents interdependent cultures.

The reason that optimism bias occupies a vital position in risk research is due to its role in the tendency of taking necessary pre-cautions (McKenna, 1993; Weinstein, 1988). Caponecchia (2010) stresses that if people demonstrate high levels of unrealistic optimism, any attempts regarding safety and precautions can be neglected. This crucial relationship has applicability to many different fields, including tourism as will be examined in this dissertation.

1.3.4. Risk Perception and Affect Heuristic

The early risk perception studies pointed out the presence of the inverse relationship between perceived risks and perceived benefits (Slovic, Finucane, Peters, & MacGregor, 2004). Similar to this dilemma, Finucane et al. (2000) suggested, although risk and benefit may be positively correlated in the environment; it applies different in people’s mind: for many hazards the greater the perceived benefit, the lower the perceived risk as in the smoking example. It is proposed that this inverse relationship might derive from affective feelings; if an activity is liked or favourable, people tend to judge its risks as low and benefits as high (Alhakami & Slovic, 1994; Finucane et al., 2000; Slovic et al., 2004).

Slovic, Peters, Finucane, & MacGregor (2005) argue that the importance of Fischhoff et al.’s (1978) dilemma was not appreciated enough within *affect heuristic* literature until Alhakami & Slovic (1994) found that the inverse relation between perceived risk and perceived benefit is linked to the strength of positive or negative affect associated with the activity as measured on bipolar scales such as good-bad, nice-awful, dread-not dread. As one of the important names for affect theory, Zajonc (1980) discusses that all perceptions include some affect: “We do not just

read an article on attitude change, on cognitive dissonance, or on herbicides. We read an *'exciting'* article on attitude change, an *'important'* article on cognitive dissonance, or a *'trivial'* article on herbicides" (p. 154). Linking this theory to a risk perception framework, it was observed; if an activity was 'liked', people tend to judge its risks as low and benefits as high (Finucane et al., 2000). In the light of these discussions, Finucane et al. (2000) liken the risk perception to halo effect, highlighting the tendency for affectively consistent judgments.

1.3.5. Critical Discussions of Psychometric Paradigm

Apart from the appraisals, Psychometric Paradigm approach has received much criticism as well over the years. To begin with, Psychometric questionnaires have been criticized for not providing actual perception since it is based on hypothetical questions (Fischhoff et al., 1978). Also the problem of targeting in the psychometric questionnaires were criticised; Sjöberg (2000a) remarks that many psychometric scales fail in specification of focus by neglecting to spell out if the risk rating is for personal risk or a general risk.

Furthermore, Marris et al. (1997, p. 304) suggested that one of the most important false assumptions of the approach was "the attributes of risk were shared universally by all individuals, and did not attempt to distinguish between individuals or groups of people, except experts vs. laypeople". In addition, Marris et al. (1998, p.636) stressed, "the risk perceptions are amplified or attenuated according to a variety of social stimuli and experiences, and that the original formulation of 'laypersons' is now too far to be of use" which can be examined within social amplification framework. Likewise, Boholm (1998) denoted more attention should be given how media influences risk perception of hazards instead of focusing only on the statistical representation of the hazards. Another criticism directed by Sjöberg (2000a, p.5), stresses that "the success of psychometric scales might have derived from the semantic overlaps. Items that

have the same or very similar denotation can of course be expected to correlate quite strongly”. Sjöberg (2000b) further discusses that the success of the paradigm also pertains to its message claiming that public risk perception is rather irrational which is a simple explanation satisfying the majority.

However, despite the critiques, Psychometric Paradigm and the emphasis on cognitive processes in risk perception kept attracting scholars from 1970s to recent years since it was more successful than its alternative, Cultural Theory, in explaining and predicting perceived risk (Sjöberg et al., 2004).

The Psychometric Paradigm approach created an environment for more psychology based studies to come. The new psychology oriented risk perception researches, mostly dominated by Risk as Feelings Theory (Loewenstein et al., 2001) and Dual Process Theories (Cameron & Leventhal, 2003; Chaiken & Trope, 1999; Epstein, 1994, Solman, 1996, as cited in Slovic et al., 2005) have a strong basis coming from the psychometric paradigm’s Affect Heuristic as Slovic et al. (2005) argue.

Slovic et al. (2005) suggest that “risk as feelings” theme was also present in early psychometric studies of risk perception (e.g. Fischhoff et al., 1978; Slovic, 1987), which investigates the risk perception not only based upon what people think of a technology or activity, but also counting in how they feel about it (Slovic et al., 2004). This process functions as explained by Alhakami & Slovic (1994, p. 1088):

When the attitude is favorable, the activity or technology being judged may be seen as having high benefit and low risk. On the other hand, when the item being

evaluated is viewed unfavorably, with negative affect, it may be seen as having low benefit and high risk.

Regarding this hypothesis, the affect heuristic, which is also observed in early psychometric studies as previously mentioned, has much in common with Loewenstein et al.'s (2001) Risk as Feelings Theory's main discussions (Slovic et al. 2004). Loewenstein et al. (2001) support that the risk evaluation is a cognitive process as in psychometric paradigm, however, suggest that the role of emotions, specially fear, worry, anxiety and dread, are more important than it was given in the traditional models. Moreover, Loewenstein et al. (2001, as cited in Slovic & Weber, 2002, p.11) points that risk as feelings "transforms uncertain and threatening aspects of the environment into affective responses (e.g. fear, dread, anxiety) and thus represents risk as a feeling, which tells us whether it's safe to walk down a dark street or drink strange-smelling water".

Slovic et al. (2004) claim that Dual Process of Thinking Theory has roots in Psychometric Paradigm as well, since risk as feelings, referred as experiential thinking in dual-thinking theories, have the very basis in affect theories as in Psychometric Paradigm (Slovic et al., 2005). Slovic & Weber (2002, p.11) describes the experiential thinking "as intuitive, automatic, and fast: It relies on images and associations, linked by experience to emotions and *affect* (feelings that something is good or bad)" similar to Psychometric Paradigm's previously explained discussions on Affect Heuristic.

1.4. Risk Perception in Tourism, Special Events and Festival Context

Nolen-Hoeksema (2010, as cited in Larsen, 2011) argues that the world media has drawn an image that there has been an excess unrest and disasters over the last decade. Some of the disasters and crisis that have influenced the risk perception of tourists' can be listed as the Indian

Ocean tsunami disaster that hit the shores of South East Asia in 2004 (Cohen, 2011), the ash cloud resulted in many flights to be cancelled in Europe in 2010 (Teigen & Glad, 2011), the bombings in Madrid in 2004 and London in 2005 (Larsen, Brun, Øgaard, & Selstad, 2011), Bali bombings in 2002 and 2005 (Brun et al., 2011), terrorist attacks in the USA on September 11, 2001 and the shocking shooting in Utøya, Norway in 2011 (Larsen, 2011). Concerning the current situation, the scholars within the tourism literature have mostly focused on international travel-related risk factors which can be mainly classified as “health, political instability, terrorism, strange food, cultural barriers, a nation’s political and religious dogma, and crime” (Lepp & Gibson, 2003, p. 606).

Björk & Kauppinen-Räsänen (2011) argue that risk perception entered the tourism field in the 1980s and became vitally important since they may determine travelers’ behaviour. Accordingly, Fuchs & Reichel (2011, p. 267) discuss the significance of consumers’ risk perception in the literature recently and state “the tourism ‘product’ is exposed to specific factors such as bad weather, unfriendly locals, striking airport personnel, inedibility of local food, terror, crime, political unrest, disease and natural disasters” due to its vast nature. A similar approach is adopted by Mitchell, Davies, Moutinho, & Vassos (1999), who stress the risk of the tourism product due to its complexity which involves risky services such as transportation or food and beverage.

Concerning that “perceived risk arises from different types of potential loss” (Dhlokiaz, 2001; Jacoby & Kaplan, 1972; Roselius, 1971 as cited in Quintal et al., 2010, p.798); Quintal et al. (2010) lists these possible risks leading to losses as performance risk, financial risk, psychological risk, social risk, physical risk and time risk. Regarding the formerly denoted interdisciplinary nature of tourism, Sönmez & Graefe (1998b) propose that the risk types one can

face in tourism experiences can vary from a disappointing travel experience (psychological risk) to a serious threat to the traveler's health or life (health, physical or terrorism risk).

Whilst the risk perception of international traveller to instable areas has been investigated in the field many times, the festival attendees' risk perception hasn't been looked into deeply in the tourism literature; even though there has been considerable research since the 1970s in the field of events, festivals, audience satisfaction, event management and event tourism (Brown & Hutton, 2013). Furthermore, most risk perception studies applied to event and festival management field focus mostly on the event managers' perception of risk, almost ignoring the audience. It is an interesting tendency concerning that the festival attendees do get through very similar processes as the international tourist who is the very focus of countless studies: the festival attendees too, do travel, enjoy food & beverage and sometimes accommodation services and compose a target for criminal or terrorist groups as observed many times. One difference between the two tourist groups is that, festival attendees stay in the festival area during the event instead of spreading into the country and therefore their negligence or unawareness about safety procedures are easier to cover once sorted out.

The focus of this study, Landstreffet 2013, can be viewed under different event typologies. It might be referred as a special event in general, since it suits to the special event definition formed by Getz (1989) which stresses the time limit, frequency of around once a year, providing different activities and purpose of entertainment or displaying a theme. As seen in the criterion, special events refer to a wide range of activities; therefore, in a more specified perspective, Landstreff can be depicted as an outdoor music festival (OMF).

Festivals are simply described as cultural celebrations created for public (Silvers, 2008). Arcodia & Whitford (2006) remark the significance of festivals as a growing and vibrant sector within tourism industry with its economic, socio-cultural and political impacts on the festival region and host groups. It is significant that OMFs within this group are increasing their popularity since they enable people to enjoy a carnival like atmosphere with many performers for an affordable fee (Earl & van der Heide, 2001).

Apart from the content classifications, event sizes require a different classification. Concerning that the focus of this study is Landstreffet 2013 Stavanger, expecting to host around 10.000 patrons; this event can easily be labeled as a mass gathering which is defined as a meeting gathering 1000 or more people (Soomaroo & Murray, 2012) usually with a common purpose like attending a sport event, music festival, public celebration or political demonstration (Hines, 2000).

Hines (2000) remarks that it is proven by history, whenever people are attending mass gatherings in large numbers, the risk of getting injured or sudden sickness increases significantly. Arbon (2007, p.132) highlights that mass gatherings' demand for health care are characterized according to the following key variables:

(1) the weather (temperature and humidity); (2) duration of the event; (3) whether the event is predominantly outdoors or indoors; (4) whether the crowd is predominantly seated or mobile within the venue; (5) if the event is bounded (fenced or contained) or unbounded; (6) the type of event; (7) the mood of the crowd, availability of alcohol and drugs; (8) the crowd density, the geography of the venue (or terrain/locale); and (9) the average age of the crowd.

Earl et al. (2005a) stress that all these factors are related to OMFs, as the Landstreff 2013 Stavanger, calling for a special interest to health and safety issues within this type of events. In relation to this discussion, despite the previously presented merry definitions, the festivals or special events might be very dangerous for the participants as experienced in the past. According to Crowd Management Strategies (2003, as cited in Earl et al., 2005a) between 1992 and 2002, 232 people have died at music festivals and 66,787 injuries have been reported in 306 events globally. Some of the unfortunate incidents observed in the festivals are 9 fatalities during Pearl Jam concert in Roskilde Festival 2000 (West, 2001), the terrorist attack in Krylya Rock Festival Moscow in 2003 causing 20 fatalities (Paraskevas, 2008), and the unfortunate crowd hazard in Love Parade 2010 which ended up with 21 fatalities and over 500 injuries (Diehl, Gathmann, Hans, & Juttner, 2010).

1.5. Neglected and Overestimated Hazards and Application to Festivals

Webster Dictionary (2013) defines a hazard as “A source of danger; a possibility of incurring loss or misfortune” or “an unknown and unpredictable phenomenon that causes an event to result one way rather than another”. Importing this definition to a special event scenario, the possible losses range is rather wide.

In this brief descriptive work I’ve chosen to investigate the risk perception level of only six hazards (excessive alcohol consumption, contagious diseases, crowd disasters, crimes, accidents and terror) from the rather more comprehensive frameworks composed by Mykletun (2011), Silvers (2008) and Earl & van der Heide (2001). The motivation for picking only six hazards is for examining these highly contemporary phenomena in today’s world in an awareness frame since the risk level the respondents indicate for each of them determine the

level of pre-cautious behaviour (Jenkin, 2006) which is evident within behavioural theories (Brewer et al., 2007).

Concerning the fact that perceptions of risk influence individuals' behaviour (Siegrist, Gutscher, & Earle, 2005) it is of critical importance to measure the risk perception for these highly fatal hazards for such an explosive crowd. Furthermore, from a different perspective, Beck (1992) argues that the consciousness regarding risks also prompts a political dynamic, which forces authorities to take necessary precautions as a cause and effect chain reaction. Therefore, indicating the risk levels bears significance both for determining attendee behaviour and management behaviour.

In former research, Sjöberg, Peterson, Fromm, Boholm, & Hanson (2005) and Fromm (2006) found out that some of the risks were over-estimated and some were neglected, which can be discussed in a relation to Social Amplification Theory and Psychometric Paradigm. According to their study, life-style risks, where alcohol consumption and getting infected with contagious diseases can be placed within, and also local accidents (e.g. slip and fall accidents) were amongst the most neglected risks. Sjöberg et al. (2005) points out that this negligence was due to optimism bias. When composing the hazard list for this study, excessive alcohol usage and getting infected with contagious diseases were added due to Sjöberg et al. (2005) and Fromm's (2006) discussions which can be examined in a relation to Psychometric Paradigm's affect heuristic concept. Amongst the most neglected hazards, the accidents were added due to the negligence level it demonstrated in Sjöberg et al.'s (2005) study and its close relation to festival areas.

The fourth hazard, the crowding disasters, was added to the study due to its significant place in the list of festival disasters reports. In a recent comprehensive work on festival safety Mykletun (2011) demonstrated that majority of the adverse events took place in the festivals were crowding disasters. Therefore, it is vital to investigate the level of risk perception associated with this hazard by the OMF audience.

Criminal acts were reported to be rated both as overestimated and neglected by Sjöberg et al. (2005). Nevertheless, concerning the amount of alcohol consumed in the OMF events (especially in the Russefeiring), and the crowd demographics, the risk awareness of the participants carry great importance and their risk perception on the issue can be an important indicator of cautious behaviour or negligence.

Finally, terrorist acts were added to the study, in order to see how the Norwegian OMF attendees evaluate such a low probability / high fatality hazard when compared to others concerning Psychometric Paradigm's and Social Amplification Theory's discussion for such vivid hazards.

1.5.1. Excessive Alcohol Consumption

Since alcohol is closely linked to many other accidental or sometimes intentional (e.g. violence) hazards, it will be given special attention within the contemporary hazards list composed for this study. For getting a better understanding of the serious risks deriving from excessive alcohol consumption, it is vital to denote the impacts of the "festivity" feeling and alcohol in creation of OMF hazards.

One of the reasons why festival attendees are so vulnerable to risks and festival safety has unique problems is the issue of "festivity" as stressed by Mykletun (2011). According to

Mykletun (2011, p.343) “festivals represent time out of ordinary time, and experiences shaped outside of ordinary social processes with room for fun and idiosyncratic behaviour”. This fact can also be observed in Brown & Hutton’s (2013, p.4) study, which investigates the audience through the arousal levels which can be examined under festivity: “the arousal levels of the audience (psycho-social domain) is a predictor of likely stress levels and subsequent injury, patient presentation and even hospital transportation that can occur”.

It is of great importance that, Sande (2002) relates this “time out” feeling to alcohol consumption which can lead to hazardous consequences. Fromme, Katz, & D’Amico (1997) address that people often do foolish and dangerous things when drinking, such as being excessively outspoken, reckless or sexually indiscrete. It is debated that one of the most explicit troubles of the early adulthood phase is the binge drinking- having more than five drinks occasionally (Schulenberg, Wadsworth, O’Malley, Bachman, & Johnston, 1996). Therefore, not surprisingly, alcohol intoxication was reported as one of the most common factors associated with public health risks together with crowd crushes in the OMFs (Earl, Parker, Tatrai, & Capra, 2004).

Concerning Landstreff is a Norwegian Russefeiring festival, looking at the alcohol consumption and festivity from a Norwegian perspective is crucial for gaining a better perspective of the issue. Sande (2002) denotes that the consumption of beer, liquor and wine are the key symbols in the transition from being an adolescent to being an adult in traditional Norwegian life circle; and in this circle Russefeiring is an unofficial body of this transition, requiring school leavers to get intoxicated during these celebrations (Pedersen, 1992; Sande, 2000a as cited in Sande, 2002). Regarding this traditional significance of getting intoxicated

during Russefeiring, which includes this very festival, alcohol driven risks are very likely to come across at Landstreff Stavanger 2013.

Researching alcohol consumption's influence of risky behaviours, correlational studies conducted have indicated that intoxicated people are more likely to become aggressive, use illicit drugs, engage in unprotected sex and drive in high speeds (McMillen & Wells-Parker, 1987; Persanen, 1991; Plant, Plant, Peck, & Setters, 1989; Stall, McKusick, Wiley, Coates, & Ostrow, 1986, as cited in Fromme et al., 1997). Accordingly, Leigh (1999) discusses that besides increasing the probability of doing something harmful such as engaging in violent or reckless behaviour, or influencing a normal activity in a risky way such as driving, alcohol usage may actually become direct reason for fatal risk: excessive drinking can lead to serious illness or even death. Therefore, Leigh (1999, p.373) states that “one could say every time someone drinks, they run a risk of experiencing a negative consequence – *taking a risk* and *experiencing a consequence* are thus indistinguishable”.

Fromme et al. (1997) argue that according to their alcohol administration studies, it is evidenced that alcohol intoxication may lead to risk-taking behaviour by its effect on cognitive processes, influencing people's judgment on potential negative consequences. Acknowledging the importance of subjective judgments of risks in risk taking, it is significant to mention the connection between subjective risk perception and optimism bias with a link to youth and alcohol. Goldberg, Halpern – Felsher, & Millstein (2002) highlight the role of perceptions of invulnerability in an adolescents' risk taking behaviour, concerning that former research indicated the bearing of perceived benefits for drinking behaviour. Correlatively Leigh (1999, p.377) denotes “drinking may adversely affect the calculation of risk – weighing harm against benefit- due to attentional or information processing deficits”.

In relation to the observed adolescent alcohol consumption and crime committing link, Room & Rossow (2001) stress the importance of drawing political attention to adolescent drinking troubles and carry the discussion to a Scandinavian concept. The authors state that while the proportion of drinking before committing a crime is about 50-60% in the most representative studies in the U.S.; “the highest values are found in Scandinavian countries, with shares of drinking offenders typically in the 70-80% range” (Room & Rossow, 2001, p. 221). Correspondingly, it is reported that many studies in the adolescent violence area have shown the relation between physical aggression, heavy drinking and involvement in criminal and other norm-violating activities (Hays & Ellickson, 1996; Osgood et al., 1988; White, 1992, as cited in Rossow, Pape, & Wichstrom, 1999). Furthermore, crucial for a mass gathering event as Landstreff, it is highlighted that a “wet” social network does not only influence one’s own drinking, but it also increases the interpersonal aggressiveness (Rossow et al., 1999). Regarding the scope of Landstreff and the population it is hosting to, as Arbon (2007) points at, the variety of risks and possible hazards are at top level concerning the negative impact of alcohol consumption together with festivity feeling as Mykletun (2011) mentions.

1.5.2. Contagious Diseases

The contagious diseases as hazards may be one of the most undermined risk probabilities when one is asked to estimate the possible risks in a special festival scenario, since it is not as spectacular as a terrorist attack or a flood as Fischhoff et al. (1978) discusses. Also the degree of sensed controllability linked to optimism bias as mentioned earlier might be another reason for underestimating disease related risks. Nevertheless, there are some unfortunate cases that have been experienced in the past. One of the most notable disease cases in the events was experienced in Galicia, Spain in 1997 where 23 people were infected with Hepatitis A through

public water fountain during a soccer championship (Abraira, Fernandez, & Martinez- Navarro, 2000). Another biological incident took place in the UK, where summer rock festivals are well appreciated, in Glastonbury Festival '97; 9 people were infected with e-coli 0157 through cows in the country, in a muddy farm like land where the festival took place (Meikle, 2000).

However, different from the given examples, the most probable diseases to get infected with at an OMF are the sexually transmitted diseases (STDs). STDs are a significant group within contemporary hazards that is in the agenda of the governments: It is estimated that every year 8 million cases of sexually transmitted diseases occur in below 25 years age group (U.S. Department of Health and Human Services, 1997 as cited in Tapert, Aarons, Sedlar, & Brown, 2001). Therefore, adolescents are under threat of a number of health risks associated with unsafe sexual activity including human immunodeficiency virus, which is mostly referred as HIV (Kotchick, Shaffer, Forehand, & Miller, 2001). As mentioned previously, use of excessive alcohol and other substances are often seen to lead to sexual risk taking (Leigh, 1999). This sexual risk taking tendency driven by excessive alcohol consumption can be investigated together with more sexual partners, less consistent use of condoms, more sexually transmitted diseases and greater prevalence of HIV, which are all observed in the early adulthood phase (Tapert et al., 2001).

According to Folkehelseinstituttet's (2012) numbers, in 2011 22,530 people were diagnosed with genital chlamydia in Norway, which is a big number in comparison to rather small population of the country. It was also reported while decrease in chlamydia cases was observed in 15-19 age group, there was an increase in 20-24 age group (Folhelseinstituttet, 2012). While 109 new cases of syphilis are diagnosed in 2012, it was observed that the cases of

gonorrhoea have increased in 2012 following the decrease in 2011 with new 443 cases (Folhelseinstituttet, 2013a).

When it comes to perhaps the most dreadful infectious disease, HIV, the numbers of Folkehelseinstituttet (2011) show a moderate decrease from 283 new cases in 2009 to 258 newly diagnosed cases in 2010. The decrease also was observed in 2012, with 242 new diagnosed HIV cases in Norway, of which 166 (69%) were men and 76 were women (Folkehelseinsituttet, 2013b). However, the institution highlights that despite the decrease, the HIV situation among homosexual men is still alarming.

As seen in the statistical data, one can conclude that the probability of getting infected with a contagious/infectious disease in Norway is higher than being under a terrorist attack. Nevertheless, due to social amplification theory and media influence, it is expected that the teenagers attending Landstreffet 2013 will tend to rate terror as more risky than diseases.

1.5.3. Crowd Hazards

Hughes (2003, p. 170) reports that “a scan of the news services shows that each year approximately two thousand deaths occur as a direct result of crowding or crowd motion”, which indicates the high fatality of crowding disasters. 1450 fatalities at a pedestrian tunnel in Mecca in 1990 (Dickie, 1995), 363 fatalities due to overcrowding in Jamarat Bridge in Saudi Arabia in 2006 (Helbing & Johansson, 2009) and 351 fatalities on an overloaded bridge in Cambodia in 2010 (Finch, 2010) are just few examples of tragic crowd disasters experienced in the past.

Smith (2001, as cited in Zhen, Mao, & Yuan, 2008) denotes that crowd disasters are low probability/ high casualty incidents, and therefore they have greater impact on society than more frequent hazards such as car crashes, which also suits to the arguments of Psychometric

Paradigm. Nevertheless, even though crowd crush risks are classified as low frequency, they should be taken seriously with full awareness by the audience concerning the crowd nature and density (Zhen et al., 2008) especially in the OMFs as seen in the former incidents:

Table 2. *Examples of adverse crowd incidents in special events*

Source	Place and Time	Consequence
Frankfurter Allgemeine, 2010	Love Parade 2010 Germany	21 fatalities, 550 injured
Fuglehaug, 2005a,b	Roskilde 2000 Denmark	Nine participants died
Rønningen, 2000	Törebodafestivalen 2000 Sweden	Nine participants injured
Solbrække, 2000	Hultsfred Festival '99 Sweden	One participant died
Solbrække, 2000	Mango Mango Concert '99 Russia	54 participants died
Solbrække, 2000	Die Toten Hosen Concert '97 Germany	One participant died
Solbrække, 2000	Maschina Concert '95 Israel	Two participant died
Solbrække, 2000	Valborgmesse Eve '81 Sweden	Three participants died
Solbrække, 2000	The Who Concert '79 USA	11 participants died

Note: Adapted from Festival Safety—Lessons Learned from the Stavanger Food Festival by R.J. Mykletun, 2011, *Scandinavian Journal of Hospitality and Tourism*, 11(3), p.347-350.

In former research it was demonstrated, when compared to baseball games, football games or concerts without a 'mosh pit'; concerts with mosh pits require more medical care, due to crowding risks (Milsten, Seaman, Liu, Bissel, & Maguire, 2003). A mosh pit is basically the

area in front of the stage where the band performs, and “moshing” is a dance style that emerged with an inspiration from earlier punk bands, which is based on kicking, pushing and shoving (Janchar, Samaddar, & Milzman, 2000). Similar to Janchar et al.’s (2000) argument, examining the reasons behind crowd crushes requiring serious medical care, Arbon (2002) indicated the link between the rock music and audience mood which is crucial for crowd crush risks; performances such as heavy metal, hard core punk and rap are reported to be highly influential on crowd behaviour (Earl et al., 2004, as cited in Earl et al., 2005a). Correspondingly, Zhen et al. (2008) stress that the performers’ actions are also an important factor influencing crowd behaviour as well as nature of the crowd, improper management, operational circumstances and false panic, referred also as phantom panic (Helbing & Molnar, 1995, as cited in Zhen et al., 2008).

Commons, Baldwin, & Dunsire (1999) point at the growing worries of public health professionals, concert-goers and crowd control experts over the increasing injuries from the “moshing” and they further discuss, apart from moshing, other highly risky behaviours in the concert crowds are ‘stage diving’ and ‘crowd surfing’. Janchar et al. (2000) discuss, due to the increasing popularity of alternative music which results in these risky behaviours the mass gathering emergency teams face more challenges.

Apart from the stage performances and type of the event, another significant determinant of crowd behaviour is the consumption of alcohol, which plays a key role in aggressive crowd behaviour (Moore, Flajšlik, Rosin, & Marshall, 2008). Accordingly, in recent research, Krausz & Bauckhage (2012) examining the Love Parade tragedy which resulted in 21 deaths, highlight the role of alcohol consumption in mass gatherings: “human reactions and mass behaviour are often unpredictable, in particular, whenever alcohol consumption is an integral part of a mass events” (p.307). In the light of these arguments, it is vital to pay attention to the perceived risk

associated with crowding disasters in an event like Landstreff, where the crowd has a very young profile, and tends to drink excessively.

1.5.4. Accidents

According to Sjöberg et al. (2005) and Fromm (2006), local accidents are one of the most neglected hazards one can come across. Nevertheless, no matter how neglected they are by the public, it does not reduce their consequences which can be even fatal. According to National Floor Safety Institute's (2013) numbers, which is a U.S. based organization, slips and falls account for over 8 million hospital emergency room visits, which is the leading cause for ER visits with a 21.3 % share.

Looking at the issue from a festival perspective, Silvers (2008) addresses that one of the most likely emergency situations to take place in a festival is the injuries; a positive association was found between the rock concerts and medical traumas (Milsten et al., 2003). Referring to the alcohol intoxication's influence on hazards which are previously discussed, perception level of the audiences for this highly 'invisible', yet significant hazard carries importance.

1.5.5. Criminal Acts

Statistics have indicated that criminality is rather a young man's field; young people are not only overrepresented in crime incidents, but they are also more involved in criminal acts when alcohol usage is present (Collins, 1981; Collins & Messerschmidt, 1993; US Department of Justice, 1988, as cited in Leigh, 1999). There is a wide variety of criminal acts one could come across in mass gathering OMFs, ranging from minor scope acts to serious criminal acts. Theft of valuable belongings (Earl & van der Heide, 2001), sexual assaults and rapes as reported in Woodstock 1999 (Earl et al., 2005a), drug possession (Vider, 2004), rioting and gang violence

(Silvers, 2008) are the criminal acts most likely to take place in music festivals. One of the most notable crime related festival disasters took place in Woodstock 1999 as Vider (2004) reports: The event which was hosting 225,000 people ended up with massive crowd violence; audiences started fires, smashed atm machines, looted vendor tents (Hendrickson, 1999; Strauss, 1999, as cited in Vider, 2004) while rioting. The riot concluded with 2 fatalities, 9 hospitalization due to ecstasy usage, 10,000 injuries, numerous arrests and claims of rape (Earl et al., 2005a; Vider, 2004).

Another significant example of criminal disorder took place in Glastonbury Festival in UK in 2000 which led to the cancellation of the festival for the next year (Earl et al., 2005a). The festival faced an unexpected invasion of 15,000 gate-crashers who got into the festival without tickets and created a risky environment in the means of public health and safety (Earl et al., 2005b; Hurst, 2000). During the event 187 arrests have been reported due to theft and drug possession (Hurst, 2000).

1.5.6. Terrorist Acts

Slovic & Peters (2006) stress that terror activities have replaced nuclear disasters in the top of the most dreaded hazards list. Naturally, this new risk factor influenced the tourism industry, as in many other aspects of life. Research have illustrated, nowadays terrorism risk is one of the most significant predictors of travel anxiety together with socio-cultural factors, which works both for local and foreign tourists (Reisinger & Mavondo, 2005).

According to Gupta (2006, as cited in Larsen, 2011) over the last decades there have been 375 deaths due to terrorism on average per year. Some of the tragic terrorist events experienced in special events are Atlanta Olympics bombing in 1996 causing one death and 111 injuries (Silvers, 2008; Soomaroo & Murray, 2012), the suicide bomber incident in Krylya Rock Festival

in Russia in 2003 leaving 20 people dead and 60 people injured (Paraskevas, 2008), shocking shootings in Utøya Island, Norway in 2011 which targeted young people attending a summer camp, causing 69 fatalities (Phillips, 2012) and very recent bombing that took place in Boston Marathon, causing 3 fatalities (Schmitt, Mazetti, Schmidt, & Shane, 2013).

Slovic (2002) discusses, 9/11 attacks have changed the content of traditional terrorism and placed it amongst the most dreaded and contemporary hazards. Correspondingly, Korstanje & Clayton (2012) claim the terrorist attacks in the U.S. in September 11th 2001 have changed “the way terrorism was perceived and portrayed” (p.13) and highlight its influence on risk perception particularly in travel and tourism sectors. Larsen et al. (2011) and Woods (2007) discuss that this adjustment in tourists’ risk perception was mainly due to the salience of the terrorist events in the global media which can be examined under social amplification framework which is previously discussed. As an example of the relationship between media salience of terror and perceived risk, Woods (2007) demonstrated that the risk portrayal is depending on the source selection.

In relation to media coverage of the terrorist attacks, Tarlow (2002; 2003) highlights the media oriented nature of touristic events for being targets of terrorist activities. The desire for becoming visible in public’s mind through terrorist activities in tourism scene has become so important in the recent years, McGee (2006, as cited in Paraskevas 2008, p. 280) has defined a special event as “a significant domestic or international event, occurrence, circumstance, contest, activity, or meeting, which by virtue of its profile and/or status represents an attractive target for terrorist attack”. In relation to this unpleasant portrait, Sönmez & Graefe (1998a) denote that the world is likely to witness more terrorist acts due to “media’s improved ability and willingness to cover it” (p.121).

It is interesting that former research on tourists' risk perception based on terrorism threat did not necessarily support Psychometric Paradigm's argument suggesting terror risk would be overestimated by the public since it is spectacular and vivid (Fischhoff et al., 1978). In a Swedish survey Sjöberg (2005) found out that people's risk perception due to terrorism was relatively low and optimism bias was present in the issue: people tended to evaluate their own risks less than the others. Correspondingly, Lemyre, Turner, Lee, & Krewski (2006) concluded in a Canadian terror risk survey that Canadians have low risk perception for terror activities. However, Lemyre et al. (2006) suggest that these results may be due to the fact that Canadians have never experienced terrorist activities in their homeland, and so did not the Swedish. Explaining the issue, the authors exemplify the former research based on U.S. and U.K. citizens indicating higher risk perception for terror, who had experienced terror in their countries before (Fischhoff et al., 2005; Lerner et al., 2003; Rubin et al., 2005, as cited in Lemyre et al., 2006).

Looking at the issue from a different angle, aiming to capture the perception of the international tourists', Larsen et al. (2011) reported that there was no significant effect of London bombings (2005) on international tourists' risk judgments. Nevertheless, Larsen et al. (2011) relates this indifference in risk perception of the tourists to the fact that dreadful events are easily forgettable. Exemplifying this tendency for forgetting dreadful events rather quickly, in their study which was conducted in the following year of 9 /11 attacks Fischhoff, Gonzalez, Lerner & Small (2005, p. 135) reported "comparing predictions from 2001 and 2002 revealed a decrease in the perceived threat of terror consistent with respondents". However, concerning the argument of Lemyre et al. (2006), claiming that the nations who experienced terror before may have a higher perception of risk, looking at the issue from a Norwegian perspective is a must due to tragic Oslo bombings and Utøya shootings in 2011. In recent research, Thoresen, Aakvaag, Wentzel-Larsen,

Dyb, & Hjemdal (2012) demonstrated, the 2011 attacks increased the feelings of insecurity, at least in the short term. Even though the overall results did not show high level of perceived risk for terror in Norway, respondents reported negative changes in overall perceptions of safety (Thoresen et al., 2012). Furthermore, in a recent study on transportation risks, Roche-Cerasi, Rundmo, Sigurdson, & Moe (2012) stated that Norwegians were more worried about criminality and terror than the accidents in collective transportation.

In addition to Norwegians' former experience with terror, due to the very recent happenings in Boston Marathon (2013) and the massive media coverage of terror nowadays, it would not be surprising to receive high degrees of perceived risk attached to terrorism in this study.

1.6. Summary

Risk perception has occupied an important place in the government agendas in the last decades (Sjöberg, 1999) as being a tool for composing new ways for evoking people's opinions about risks, providing a basis for understanding and predicting public responses to hazards and improving the communication of risks among laypeople and professionals (Slovic, Fischhoff, & Lichtenstein, 1982). A number of scales were constructed by the scholars in order to measure perceived risk, nevertheless, Psychometric Paradigm has been the one that is most influential (Siegrist et al., 2005); for capturing more variance in people's risk perception in many comparative studies (Marris et al., 1998; Olstedal et al., 2004; Sjöberg, 2000a, 2000b, 2002a; Sjöberg & Wåhlberg, 2002).

Psychometric Paradigm is based on the idea that ordinary people use qualitative dimensions (e.g. voluntariness, immediacy of effect, knowledge, control, newness, catastrophic,

dread, severity of consequences) while evaluating possible risks of the activities and technologies (Fischhoff et al., 1978; Marris et al., 1997). These qualitative dimensions of risks are utilized for creating cognitive maps of different hazards for an easier understanding of people's perception of risks (Siegrist et al., 2005). As a result of many applications of the model, the major findings of psychometric scales were that there was a massive difference between risk perceptions of laypeople and experts; while perceptions of lay people relied on qualitative dimensions of risks, experts employed technical estimations of annual fatalities from each hazard (Slovic, 1987). Nevertheless, in this study a more recent approach is employed, which debates in our new society where information channels are more improved and varied, the "lay people vs. experts" perspective is superseded (Marris et al., 1997) and biases are present in everyone's risk perceptions whether they are experts or not (Beck, 1992; Sjöberg, 2002b).

Another significant finding of the scale was that ordinary people had the tendency of overestimating the probability of more "vivid" hazards, such as plane crashes (Lichtenstein et al., 1978).

The proposed difference between the real probability of risk and the perceived risk is argued to be connected to the employment of heuristics; availability, representativeness and anchoring, which lead to biases in risk perceptions (Sjöberg, 2000a; Tversky & Kahneman, 1973). Of the three heuristics, availability heuristic was given special attention for explaining the biases in people's risk perception with a connection to Social Amplification of Risk Framework.

Social Amplification of Risk Theory argues that people's risk perception is influenced by the media by highlighting some risks, while undermining some others (Kasperson et al., 1988) for the sake of sensationalism (Wåhlberg & Sjöberg, 2000). Therefore, less vivid, yet more

probable risks, such as car crashes, do not cover much space in the news as the risk of terror, which cripples the estimation and qualification of risks by the public (Gierlach et al., 2010).

Apart from the intuitive biases (e.g. availability), also optimism bias, which simply refers to the belief “it won’t happen to me”, was found to be highly related to people’s risk perception (Caponecchia, 2012; Weinstein, 1987) since it impacts the level of perceived risk and has a major influence on individuals’ pre-cautious behaviour towards hazards (Caponecchia, 2010). What is interesting about this particular bias for this research is the suggested link between the level of perceived control, which is one of the dimensions investigated in this study, and perceived risk (McKenna, 1993).

Another heuristic that is claimed to be causing distortions in people’s risk perception is affect heuristic, which is also present in the Psychometric Paradigm Model (Slovic et al., 2004) demonstrating the inverse relationship between perceived risk and perceived benefit: People tend to evaluate the risks deriving from a certain activity according to if they like the given activity or not (Alhakami & Slovic, 1994).

Looking at the issue from a festival perspective, it was explained in the previous chapters, how risky an OMF can be for the big crowds. Therefore, in order to measure the risk levels attached to each of them six contemporary hazards (excessive alcohol consumption, contagious diseases, accidents, crowd hazards, criminal acts, terrorist acts) were identified. While choosing the hazards, the studies of Sjöberg et al. (2005) and Fromm (2006) were used as a starting point to extract examples of overestimated and undermined hazards.

The outcome of the research is expected to demonstrate the overall riskiness of each hazards, the presence of heuristics and biases and also the unawareness of the population for

certain risks. In order to reveal the mentioned aspects the designed study will follow the steps as listed below:

- Calculating mean scores for each hazard for demonstrating overall riskiness attached to them and investigating presence of biases
- Running factor analysis for composing stronger constructs for explaining the variation
- Indicating mentioned associations thorough Pearson's correlation analysis
- Pointing out important predictors of risk from a list of qualitative dimensions by applying multiple standard regressions on data.

Concerning the previously highlighted arguments about the importance of measuring risk perception as an indicator of pre-cautious behaviour (Jenkin, 2006) and being a warning for policy makers (Beck, 1992), the expected outcome will serve to create safer event experiences.

2. Method

2.1. The Sample

The sample of the study consisted of 230 participants who attended Landstreffet Stavanger 2013 in Kongeparken between the dates 3-5 May 2013.

2.1.1. Landstreff Stavanger

Landstreff is the official body for organizing the celebrations for Norwegian senior high school students in different parts of Norway (e.g. Landstreff Stavanger, Landstreff Lillehammer) as a part of Russefeiring.

The focus of this study, Landstreff Stavanger 2013, took place between May 3rd and May 5th 2013 in Kongeparken with the attendance of 12,000 school leavers (Kristoffersen, 2013a), or “Russ” as referred in Norwegian. The main activity of the festival was the open door concerts of various national and international music bands such as Knife Party from the U.S., Two Door Cinema Club from U.K., Kaizers Orchestra from Norway, and many others. However, there were also other activities provided in the festival area including sand football tournament, talent contest, amusement park and the “russ village”. Apart from the entertainment activities, the festival area also provided a camping area and food and beverage services (Landstreff Stavanger, 2013).

The reason for choosing the audience of this OMF in order to examine the level of perceived risk for previously discussed hazards was due to the wild traits the Russ population bears: To begin with “Russefeiring” means the party of intoxication which has the roots back to 1905 (Sande, 2002). Considering the name of the tradition, the purpose of the Russefeiring and the students attending Landstreff is simply to get drunk and celebrate their transition from adolescents to adults as previously expressed. Referring back to Mykletun’s (2011) emphasis on the “festivity” feeling, it is evident that this mind set might become dangerous for the individual when experienced together with excessive drinking. Furthermore, apart from the drinking side of the story, Russefeiring has its very own traditions, which can influence the safety of the attendees in many different levels. One of the most significant traditions of the Russ, the “knot list” is published every year by the Russefeiring Committee, determines the “symbols of breaking the taboos and rules” (Sande, 2002, p.296) which earns the performer a “knot” (badge). Since many badges in the knot list of 2013 have great emphasis on alcohol and sex (Mitchell & Berentsen, 2013), it is expected to observe risk-taking behaviour in these fields.

Also, the duration of the festival and the camping facility increases the probability of more risky activities to be performed by this huge crowd, which is enjoying a “time out” (Sande, 2002, p. 280).

Furthermore, the age group of the population was another significant factor for sampling. Gullone, Moore, Moss, & Boyd (2000, p.231) discuss “compared to other life periods, adolescence is characterized by a heightened potential for risky behaviours”. Ergo, I believe that the risk perception of such an explosive crowd of around 12,000 adolescents is interesting and crucial to investigate in the issues previously explained in order to determine the necessary regulations and communication channels to overcome adverse events in the future.

2.2. Procedure

Concerning the difficulty of convincing partying teenagers to fill in a questionnaire during the festival, reaching the sample through email survey was decided as the method for collecting the data. Therefore, in order to reach the participants of Landstreff 2013, the organisation committee was contacted by Reidar Mykletun, for constructing cooperation. The security manager of Landstreff Stavanger, Haakon Lund, accepted the offer and agreed to attach this present research to their satisfaction survey which is to be sent to the email addresses of the participants.

In the planning phase of the questionnaire, a more comprehensive list of hazards was intended, however, due to the organisation’s wish, it had to be narrowed down to 6 hazards. During the reduction process, some of the items were altered according to Kongeparken’s representative Lund’s request. For instance, the item ‘transportation hazards to and from the venue’ was transformed to ‘accidents’ according to the organisation’s request.

A small pilot test for the English version of the questionnaire was conducted before the Norwegian translation. This first version of the questionnaire was exactly the same of Fischhoff et al.'s (1978) psychometric scale, except the hazards listed. 5 respondents were asked to review the questions and indicate their concerns if there is any part unclear. Four of the respondents were students (3 master students, and 1 bachelor student) of UIS, and one was a professor of NHS, who are all fluent both in English and Norwegian. The feedback from the respondents expressed that the language used in the questionnaire was rather too advanced and academic for such a young sample to understand and evaluate accurately. Therefore, while translating the questionnaire into Norwegian, some changes had to be applied for making it more understandable for the chosen population.

The questionnaire designed for investigating risk perception was sent to the organization in late April to be attached to Landstreff's satisfaction survey. Questback was utilized as the tool for collecting responses through email. The first emails were sent on 6th on May, right after the event. 10 days later a reminder was sent, and finally the survey was closed on 24th of May with 291 responses with a small response rate of 2.5% out of 11,300 sent emails.

2.3. Instrument

The classic psychometric scale which was composed by Fischhoff et al. (1978) was used as survey tool for this research with minor modifications according to the content. The original psychometric scales were invented for rating people's respond to risks surrounding them in a wide frame consisting of 30 hazards, including hazards such as nuclear power, spray cans, food coloring, etc. (see Fischhoff et al., 1978). In order to capture the perceived risk level of each hazard, nine qualitative dimensions were used in the scales, which can be expanded to 18 dimensions according to the number of hazards investigated (Sjöberg, 2000a). It is expressed that

the most commonly applied dimensions of the early psychometric scales in many studies are newness, involuntariness, catastrophic potential, dread, immediacy of effects, severity of consequences, knowledge and controllability (Bronfman, Cifuentes, deKay, & Willis, 2007). Accordingly, psychometric paradigm scales are based on a 2 factor space according to how these dimensions load on Factor 1, Dread Risk (lack of control, dread, catastrophic potential, fatal consequences) and Factor 2, Unknown Risk (unobservable, unknown, new, and delayed in effect) (Slovic & Weber, 2002). However, former research has indicated that might not always be the case according to the content. For example, McDaniels, Axelrod, & Slovic, (1995) concluded that five factors characterize the risk perception over ecological risk: impact on species (factor 1), human benefits (factor 2), impact on humans (factor 3), avoidability (factor 4) and knowledge of impacts (factor 5). Likewise, Sjöberg's study (2000, as cited in Willis, DeKay, Fischhoff, & Morgan, 2005) on risk perception regarding nuclear waste generated four factors explaining 66% of the variation. Furthermore, it is observed in some studies that even if the factor loadings are limited down to two, they are not always Dread Risk and Unknown Risk. In their cross-cultural research investigating American and Norwegian risk perceptions, Teigen, Brun, & Slovic (1988) acquired 2 factors, namely Fatal Risk and Involuntary Risk. Thus, it is possible to obtain more than two factors considering that the current study is not an imprint of Fischhoff et al.'s (1978) original Psychometric Paradigm measurement.

Jenkin (2006) argue that many dimensions can cause very cumbersome results; therefore it is adequate to select the dimensions most suitable for the purpose of the study. Thus, since the current study is not dealing with implementing new technologies as the standard psychometric scales do, some of the most commonly applied dimensions were excluded. Another necessity for making the survey more compact was due to the Landstreff organisation's demand for

questionnaire to be as small as possible in order to increase the amount of responses.

Furthermore, successful applications of Psychometric Paradigm Model are available within literature, such as Gardner & Gould's (1989) study, which investigated the risk perceptions of a wide American sample using only 3 dimensions and 6 hazards (items).

In the adjustment process, voluntariness dimension was taken out concerning that the motivations for rating the voluntariness for a nuclear power plant next to your household and rating the possible hazards in a festival one has bought a ticket to get in are very different. Also, newness dimension was excluded regarding the arguments of Sjöberg (2000a) which denotes that newness cannot be a significant indicator of riskiness perception in many contexts. And finally, severity of consequences dimension was not included to the study concerning that, it can be deducted from the results for perceived level of dread and perceived level of chronic-catastrophic traits of the hazard. The applied qualitative dimensions are as follows:

Controllability. According to Fischhoff et al. (1978) controllability, or 'control over risk', dimension refers to the extent people can avoid risks by personal skills when engaged in certain activities. Schmidt (2004, p.5) explains that "risks perceived to be under one's own control are more acceptable than risks perceived to be controlled by others". Thus, this dimension holds great importance concerning its close relationship to optimism bias (Sjöberg et al., 2004), which will be of interest especially for alcohol intoxication and contagious diseases items.

Catastrophic potential. Marris et al. (1997) explains that this dimension measures the risk level attached to one activity's ability to kill many people at once. The original scale formed by Fischhoff et al. (1978, p.133) was set to measure this dimension by asking "is this a risk that

kills people one at a time (chronic), or a risk that kills large numbers of people at once (catastrophic risk)?”, which is replicated in this study.

Common vs. Dread risk. This dimension measures the perceived level of dread risk or common risk for each hazard (Fischhoff et al., 1978). Sjöberg et al. (2004) denote that common-dread dimension is an indicator of if the people have learned to live with the given risk and if can they think calmly about it; or if it is something they have great dread for.

Knowledge about risk. In the early psychometric scales ‘knowledge about the risk’ dimension appeared in two different versions. The first version investigated the knowledge of the people who were exposed to the certain hazards, and the second version dealt with the knowledge of the science regarding the specific hazard (Fischhoff et al., 1978). Rimer (1997, as cited in Mun, 2004) denotes that low level of knowledge in the responses serves as a warning for high level of perceived risk. Similarly, Beck (1992) argues that, in the risk society we are living in, the unknown have become a dominant force in society.

Since this study is not examining the technological hazards as stressed before, only the knowledge of the people who are exposed to the risks (festival attendees in this specific case) was taken into consideration, and knowledge of science was excluded due to irrelevance.

Immediacy of effects. Also referred as ‘latency of effects’ in some resources, this dimensions indicates if the effects associated with the each activity occur immediately, or later on (Bronfman et al., 2007). Schmidt (2004) exemplifies smoking and lung cancer or unbalanced fat nutrition and heart disease relationships for most basic examples of this dimension. In this research, the contagious diseases transmitted by unprotected sex can be examined under this title.

Appropriately, the basis of this study is built upon the ratings of six chosen hazards (excessive alcohol consumption, contagious diseases, accidents, crowding hazards, criminal acts, terrorist acts) which serve as items, across these five qualitative dimensions, which perform as the constructs. As discussed earlier, while itemizing the risks, the ones which are highly characteristic for the OMFs, yet often overlooked were selected in order to examine the perceived level of risk attached. In addition, a low probability/ high consequence risk (terror) was added for comparison and testing Psychometric Paradigm's arguments.

Apart from the introduced qualitative dimensions of hazards, another rating was added to the scale: perceived overall risk which serves as a dependent variable. Even though, this rating is present in other psychometric scales as a task as well, where the participants are asked to evaluate the overall risk of dying from a certain activity (see Fischhoff et al., 1978), this rating is not a replica of the original, because it does not cover the brief explanations of how one can die from each hazard as the original psychometric scales do. The perceived risk evaluation presented in this work is a simpler version of the original, which will be used to comment on the relationships between the degree of perceived riskiness and the qualitative dimensions associated with each hazard.

The main motive for choosing Psychometric Paradigm Model for risk perception measurement was due to varied reasons. Firstly, it was considered for being superior to its alternative, Cultural Theory, in the means of explaining the variance (Marris et al., 1998; Olstedal et al., 2004; Sjöberg, 2000a, 2000b, 2002a; Sjöberg & Wåhlberg, 2002). Secondly, psychometric scales were more appropriate and convenient to apply for the sample regarding its simple design, concerning that the sample composes mostly of 17 year olds: Cultural Theory is based on placing people to four main worldview typologies (egalitarian, individualist, hierarchist, fatalist),

according to their answers to questions which investigate one's political ideology (Wildavsky & Dake, 1990). Therefore, the questions in the cultural scales have a heavier language that aims to measure people's risk perception based upon their worldviews through political and social orientation. On the contrary, the method applied for this research, Psychometric Paradigm has a more practical design that is based upon ratings of different hazards across different qualitative dimensions.

In relation to the age issue, one can discuss that risk perception studies are in general more applicable to adult populations, preferably above 18 years as observed in former studies (e.g. Fischhoff et al., 1978; Siegrist et al., 2005). Nevertheless, successful practices of Psychometric Paradigm conducted on adolescents are present in the literature (e.g. Benthin, Slovic, & Severson, 1993).

2.4. Data Analysis

The data collected through the online survey was processed using the Statistical Package for Social Sciences (SPSS) version 20. Firstly, the data was cleansed of totally empty responses and extreme outliers (e.g. rating every hazard as 1) for not damaging the Factor Analysis, which is highly sensitive to outliers (Pallant, 2011). Also, the negatively-worded controllability dimension's items were reverse coded for not distorting the results.

The descriptive analyses were applied on the data for generating frequencies, means and standard deviation in order to create a general picture of the data. Exploratory Factor Analysis was utilized in order to reduce a large set of variables to a smaller set of components (Pallant, 2011). Items with factor loadings less than .40 were omitted as in former Psychometric Paradigm applications (e.g. McDaniels et al., 1995; Willis et al., 2005). Sum scores according to the factor

analysis results were formed for further analysis. The sum scores yielded good reliability according to Cronbach's Alpha determinant, with values ranging from .62 to .85.

Following the composition of factors and reliability analysis, Pearson's correlation was applied on the items for investigating the strength and direction of the relationship between the variables (Pallant, 2011). Considering the emphasized prominence of excessive alcohol consumption, the item's attributes' correlation to other hazards was of special interest.

Finally, multiple standard regression analyses were used for investigating each independent variable's contribution for predicting the dependent variable and also the overall strength of the model for explaining perceived risk in a festival setting. Additionally sum scores of each hazard were also run in the multiple regression analyses for searching how each hazard's attributes assisted for predicting the overall risk for given hazard, as applied in former psychometric studies (e.g. Gardner & Gould, 1989).

2.5. Reliability and Validity

Neuman (2011) defines reliability as the dependability or consistency of a construct; same things recur in similar conditions. In other words, reliability indicates the extent to which measurements are repeatable in a quantitative research (Nunnally, 1967).

Pett, Lackey, & Sullivan (2003) remark that the most commonly employed techniques for assessing internal consistency of constructs are split-half technique and Cronbach's Alpha, which is utilized for examining the reliability of this research. According to Cronbach's alpha determinant, the constructs that are scoring .5 to .6 alpha values do suffice (Nunnally, 1967), however alpha scores reaching .7 are considered more consistent (Pallant, 2011). The sum-scores formed following the factor analysis indicated adequate reliability with Cronbach's alpha values

ranging from .62 to .85. The lowest alpha value was generated by factor 4, which was composing of Immediacy of Effects items and Controllability of Alcohol Consumption item. Even though the alpha value tended to rise up to .69 with the removal of Controllability of Alcohol Consumption item, the item was kept due to theoretical concerns.

Neuman (2011) discusses, validity in quantitative research refers to measurement validity which deals with “how well an empirical indicator and the conceptual definition of the construct that the indicator is supposed to measure ‘fit’ together” (p. 211). There are different types of validity when handling the quantitative studies. Face validity, content validity and construct validity, with its sub groups convergent and discriminant validity (Neuman, 2011), are the ones which are used more commonly.

Anastasi (1988) explains face validity as whether the measurement “looks” valid, and how it is evaluated by the scientific community. Judging the validity of the instrument used for this very research from a face validity perspective, it can be classified as valid considering the massive number of studies measuring risk perceptions through psychometric paradigm scales.

Content validity is defined as “the degree to which elements of an assessment instrument are relevant to and representative of the targeted construct for a particular assessment purpose” (Haynes, Richard, & Kubany, 1995, p. 239). For satisfying this requirement of validity, a wide literature review was conducted both in psychometric risk perception research and festival hazards field. For achieving validity, characteristic hazards of OMFs were investigated and extensive works of Mykletun (2011), Silvers (2008), and Earl & van der Heide (2001) were taken as starting points. In order to expand the framework, testing Psychometric Paradigm’s arguments and creating an environment suitable for comparisons, both salient (e.g. terrorist acts)

and ‘quite’ hazards (e.g. contagious diseases) were included. For investigating the attributes of the hazards the dimensions that took place in many appraised works have been utilized for the study such as Knowledge, Common-Dread, Controllability, Chronic-Catastrophic and Immediacy of Effects (e.g. Bronfman & Cifuentes, 2003; Bronfman et al., 2007; Fischhoff et al., 1978; Siegrist et al., 2005; Slovic, Fischhoff, & Lichtenstein, 1985). Through the application of these commonly applied dimensions, the content validity requirement was fulfilled.

Construct validity is the extent to which an instrument measures the concept that is set up to measure (Bagozzi, Yi, & Phillips, 1991). Neuman (2011) addresses that construct validity is concerned about if the various indicators behave in a consistent manner and discusses that it breaks down to two types: convergent validity and discriminant validity. While convergent validity investigates if the indicators “converge” or operate in similar ways, discriminant validity investigates the opposite aspect; it examines the relationship and the direction of it between the variables that are not supposed to be associated (Neuman, 2011).

The constructs composed for the study tended to create more than one factors, therefore new constructs were created to get more solid information from the data. The behaviour of the constructs raised the question whether these dimensions have a general applicability. On the other hand, the items making up the constructs acted in a logical pattern as expected, designating convergent and discriminant validity.

In order to fulfill the requirements of the explained validity procedures a wide literature review was conducted as stressed earlier, for applying the most appropriate model for data collection. In the itemizing process, the initial instrument composed of a larger set of variables, nevertheless, it had to be narrowed down as mentioned previously according to the demand from

the cooperating organisation (Landstreff Stavanger 2013 - Kongeparken). Following the itemizing, the pilot test of the survey took place and the necessary adjustments were applied.

3. Findings

3.1. Mean Ratings of Hazards and Overall Perceived Risk

Following the necessary analysis conducted regarding the normality of the data, the mean ratings of dependent and independent variables were calculated (Table 3). The mean ratings of the hazards bear great importance for the given study, considering that psychometric risk perception analyses is basically founded upon ratings of the same hazards in different dimensions.

Table 3 *Mean ratings and standard deviations of variables (n=230)*

	Knowledge		Internal Dread		External Dread		Uncontrollability		Immediacy of Effects		Catastrophe		Perceived Risk	
	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD	M	SD
Contagious diseases	2.83	1.91	3.24	1.98	-	-	3.47	1.66	5.06	1.77	5.43	1.80	4.01	1.82
Excessive alcohol	2.63	1.87	3.04	1.86	-	-	2.49	1.36	2.87	1.57	4.51	2.01	4.23	1.73
Accidents	3.12	1.69	-	-	4.30	1.96	3.88	1.52	1.70	1.06	4.46	1.71	3.18	1.48
Crowding hazards	3.11	1.73	-	-	4.57	1.92	3.97	1.72	1.51	0.91	4.58	1.93	3.85	1.73
Criminal acts	3.02	1.82	-	-	4.92	1.96	4.27	1.65	2.84	1.45	4.14	1.82	3.71	1.65
Terrorist acts	3.82	2.29	-	-	6.10	1.80	5.48	2.07	1.70	1.70	5.90	1.89	1.66	0.95

Note 1: Control items were re-coded due to negative wording; therefore the scale here named as Uncontrollability indicating how uncontrollable a hazard is perceived.

Note 2: Since the Dread Item has generated two factors in the factor analysis, and they explained notable variance both of the factors were kept. While External Dread Factor composed of accidents, terror, crime and crowding hazards, Internal Dread Factor included excessive alcohol consumption and contagious diseases.

The findings have illustrated both contradicting and supporting associations to the theories presented in previous chapters which will be discussed deeper. The initial analyses examining the mean scores of the six hazards demonstrated that excessive alcohol consumption is the highest rated hazard (mean = 4.23, SD = 1.73), followed by contagious diseases (mean = 4.01, SD = 1.82) in the means of perceived overall risk. On the other hand, terrorist acts was the lowest rated hazard (mean = 1.66, SD = 0.95) which are all very interesting results comparing to Psychometric Paradigm's arguments. When the mean scores were studied from a controllability point of view, terrorist acts were the ones considered to be least controllable (mean = 5.48, SD = 2.07) and the hazard which was considered to be most under control was excessive alcohol consumption (mean = 2.49, SD = 1.36). Even though mean scores do not tell as much as more skilled analyses do, it can be said based on these scores that more vivid hazards are not always necessarily perceived as more risky, and also people do not always get biased by affection when evaluating risks, as the high level of perceived risk for excessive alcohol consumption indicates. Therefore, these two items hold importance for opening affect heuristic and vividness of a hazard influencing the risk perceived for discussion.

Another remarkable beacon extracted from the mean scores of each hazard's perceived risk is that no hazard is evaluated as "risky", even the highest means clustering at .4 value indicating moderation on a 7 point Likert scale with a range of 4.23 to 1.66 as shown in Table 3.

3.2. Factor Analysis and Cognitive Maps

Exploratory factor analysis was employed for determining the main factors behind the overall risk perception. 30 items composing the 5 risks dimensions (knowledge, controllability, immediacy of effects, catastrophic outcome and dread) were subjected to principal component analyses (PCA) using SPSS version 20. The Kaiser-Meyer-Olkin value was .701 which is above

the required value of .6, and Bartlett's Test of Sphericity reaching the statistical significance level ($p < .001$) which indicates the factorability of the correlation matrix (Pallant, 2011).

Principal component analysis illustrated 10 factors with eigenvalues exceeding 1, explaining 68.5% of the variance. Regarding that five dimensions created 10 factors, it is clear that some of the hazards behaved differently than the others in dimension ratings. It is observed in the initial components table, the terror items tended to stand alone. While reducing the factors, apart from the eigenvalues, also the variance explained by the factors was taken into consideration, regarding the 5% rule explained by Pett et al. (2003). According to this aspect, while picking the factors, the components that explain at least 5% of the total variance should be included further investigation. Applying this rule enabled the process of deduction to be easier, considering the rather big number of factors generated by the analysis.

Six factors explaining 52.6 % of the variance were extracted after the initial factor analysis. In order to interpret the data orthogonal varimax rotation was employed as in the original Psychometric Paradigm scales (e.g. Fischhoff et al., 1978), which “maximizes variances of the loadings within the factors while also maximizing differences between the high and low loadings on a particular factor” (Pett et al., 2003, p. 141) providing ease for investigating loadings. According to the items loading in the components the factors were named Knowledge, External Dread, Control, Immediacy of Effects, Catastrophe and Internal Dread (Table 4). The factors explained the 13.4%, 10.5%, 8.6%, 8.0%, 6.9% and 4.8% of the variance respectively. The last factor explaining only 4.8% of the total variance was included for further analyses due to theoretical importance which indicates the level of perceived dread for excessive alcohol consumption and contagious diseases.

Table 4 *Rotated factor loadings of risk dimensions (n = 230)*

Items	Factor 1	Factor 2	Factor 3	Factor 4	Factor 5	Factor 6
Knowledge						
$\alpha=.855$, mean= 2.52, SD = 1.04						
1. Knowledge of crime	.832					
2. Knowledge of contagious diseases	.805					
3. Knowledge of alcohol consumption	.797					
4. Knowledge of crowd hazards	.762					
5. Knowledge of accidents	.735					
Dread for External Threats						
$\alpha=.819$, mean=4.2, SD = 1.14						
1. Dread for crime		.810				
2. Dread for crowd hazards		.800				
3. Dread for accidents		.781				
4. Dread for terror		.672				
Control						
$\alpha=.747$, mean=3.6, SD = 0.88						
1. Controllability of crime			.760			
2. Controllability of accidents			.747			
3. Controllability of crowding hazards			.724			
4. Controllability of terror			.644			
5. Controllability of contagious diseases			.506			
Immediacy of Effects						
$\alpha=.67$, mean=1.8, SD = 0.60						
1. Immediacy of effects of crowd hazards				.743		
2. Immediacy of effects of terror				.739		
3. Immediacy of effects of accidents				.686		
4. Immediacy of effects of crime				.604		
5. Immediacy of effects of alcohol				.547		
6. Controllability of alcohol consumption				.411		
Catastrophic Outcome						
$\alpha=.66$, mean=3.9, SD = 0.91						
1. Catastrophic outcome of accidents					.714	
2. Catastrophic outcome of alcohol consumption					.683	
3. Catastrophic outcome of crowd hazards					.661	
4. Catastrophic outcome of contagious disease					.578	
5. Catastrophic outcome of crime					.554	
Dread for Internal Threats						
$\alpha=.7$, mean=2.6, SD = 1.12						
1. Dread for contagious diseases						.721
2. Dread for alcohol consumption						.711
Rotation sums of squared loadings	3.280	2.883	2.870	2.588	2.588	1.916
Total variance explained (%)	13.492	10.586	8.672	8.047	6.995	4.851
Total cumulative variance explained (%)	13.492	24.078	32.750	40.798	47.793	52.644

Note: Factor loadings <.4 are omitted.

As explained previously, the Psychometric Paradigm aims to depict cognitive maps based on the risk ratings (Siegrist et al., 2005). While composing the cognitive maps, the early risk perceptions mostly used two factor solutions, namely Unknown Factor and Dread Factor. Nevertheless there are examples of psychometric risk perception surveys resulting in more than two factors as denoted in previous chapters. In order to generate cognitive maps illustrating the geometric placing of hazards on an x-y plane, averages of each hazard's loading to each factor were calculated (Pett et al., 2003) in order to generate the cognitive maps of festival risk perception.

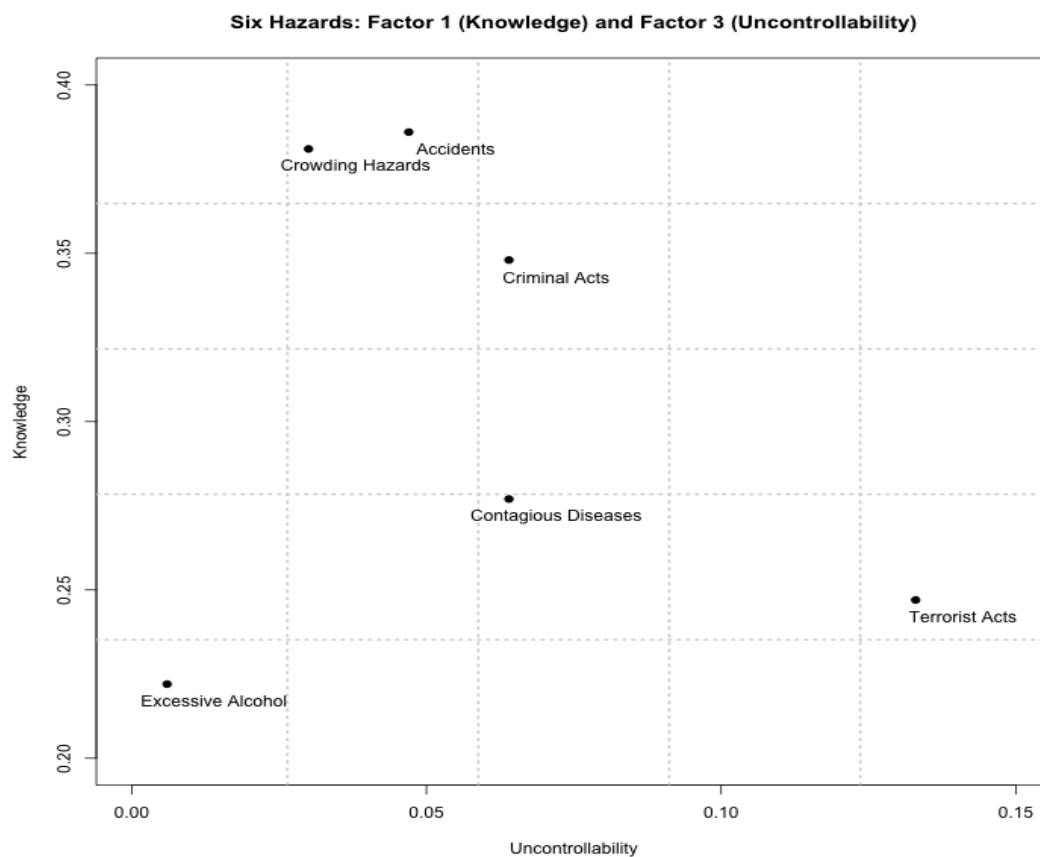


Figure 2 Placement of 6 hazards on Factor 1 (Knowledge) and Factor 3 (Uncontrollability)

Figure 2 reveals the relationship between perceived Knowledge and perceived Uncontrollability dimensions for each hazard. When the map is investigated the first significant

outcome catching the eye is the low knowledge and high perceived controllability (controllability item increasing from controllable to uncontrollable due to re-coding) reported for Excessive Alcohol Consumption item, mirroring even though the participants showed low level of knowledge regarding the hazard, they still perceived it as highly controllable, calling for attention of authorities. Likewise, Contagious Diseases item arouses interest for the low level of knowledge and only moderate level of control indicated by the participants, pointing at unawareness towards item.

On the other hand, crowding hazards, criminal acts and accidents indicates moderate controllability when higher levels of knowledge are achieved, which is suitable for common sense. Also Terrorist Acts item is the one which was perceived as the least controllable when lower degrees of knowledge was indicated, demonstrating that the participants' acted in a reasonable way.

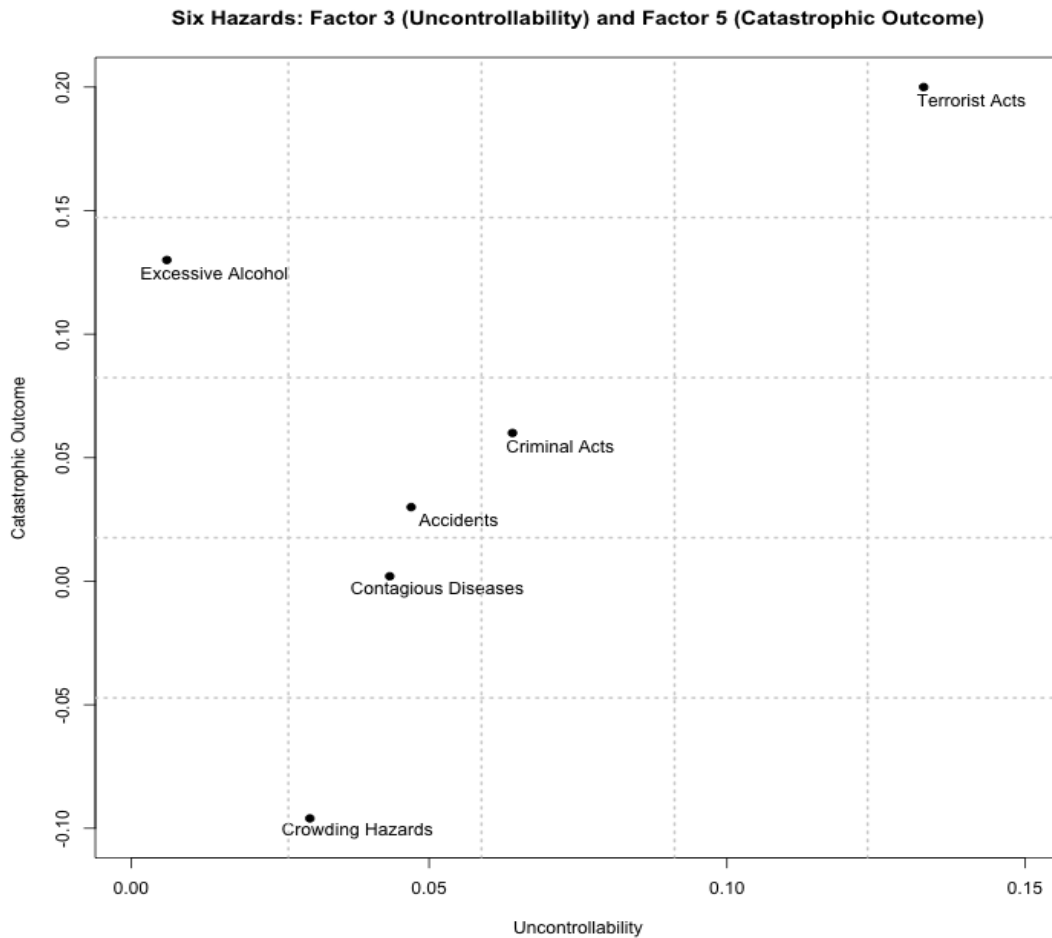


Figure 3. Placement of six hazards on Factor 3 (Uncontrollability) and Factor 5 (Catastrophic Outcome)

The cognitive map composed according to factor loadings of Uncontrollability Factor and Catastrophic Outcome Factor gives complicated outcomes. Not surprisingly, the most uncontrollable and catastrophic perceived hazard was Terrorist Acts which was placed on the upper right side of the map. According to the map, the participants perceived no catastrophic outcome when the controllability is achieved for crowding hazards. Even though this relationship may sound as reasonable, evaluating crowding hazards as highly chronic, almost not as an issue when it comes to Catastrophic Outcome in a mass gathering, expresses a very massive illusion requiring risk communication by the authorities.

Contagious Diseases item was ranked as chronic which refers to very low level of perceived catastrophic outcome, when it is perceived as under control. Similarly, Criminal Acts and Accidents items were perceived as chronic rather than catastrophic when controllability level was moderate.

Excessive Alcohol Consumption item was located by the audience in a place hard to interpret. While it was relatively perceived as catastrophic, the level of perceived controllability was high which demonstrates a contradiction. It might be attributed to optimism bias counting self as highly in control, even though the hazard is perceived as highly catastrophic.

3.3. Correlations

The relationship between perceived risk and composed risk dimensions was investigated using Pearson's correlation coefficient (Table 5). The relationships obtained from the Pearson's correlation analyses did not demonstrate outstanding relationships between the risk perception and the qualitative dimensions. The strongest relationships with overall perceived risk in a festival was generated by Catastrophic Outcome ($r = .320, p < .01$) and Control ($r = .298, p < .01$) dimensions. Nevertheless, more interesting relationships were generated on an item-to-item correlation level.

One of the central issues of this work; the associations between overall perceived risk for excessive alcohol and other hazards were documented through observed correlations. Significant relationships between overall perceived risk for excessive alcohol consumption and overall perceived risk for accidents ($r = .586, p < .01$) were reported. Likewise, perceived risk for excessive alcohol consumption correlated significantly with perceived risk for contagious diseases ($r = .517, p < .01$) and perceived risk for crime ($r = .558, p < .01$).

One of the most curious risk attributes for this research was *controllability* which is given special attention in the research. It is vital to note again that, due to reversed coding of the dimension, the increasing trend in mean ratings mirror the level of perceived “uncontrollability”. Controllability items illustrated noteworthy results in Pearson’s correlation analysis. Perceived risk of contagious diseases associated with uncontrollability of contagious diseases ($r=.378$, $p < .01$). Another important indicator between perceived risk and uncontrollability was reflected in the association between perceived risk of crowding hazards and uncontrollability of crowding hazards ($r = .315$, $p < .01$). One of the central issues investigated in this paper, risk of excessive alcohol consumption and uncontrollability, demonstrated a correlation level which is lower than expected ($r = .250$, $p < .01$). Nonetheless, this association still bears importance for indicating the presence of the proposed relationship in theory.

Apart from the aspects composing main research questions, other remarkable relationships obtained in qualitative risk attributes’ (independent variables) as well, explaining how qualitative attributes are related to hazards’ overall perceived risk. Catastrophic Outcome attribute was the most crucial qualitative dimension following Controllability; illustrating the positive association between perceived riskiness and the number of people lives at stake. Catastrophic outcome of contagious diseases variable demonstrated association with perceived risk of contagious diseases ($r = .357$, $p < .01$), catastrophic outcome of crowding hazards indicated relationship with perceived risk of crowding hazards ($r = .247$, $p < .01$) and catastrophic outcome of criminal acts correlated with perceived risk of criminal acts and ($r = .246$, $p < .01$).

An interesting tendency observed in the correlation analysis was the association between the attributes of accidents and crowding hazards. Some examples of this tendency was seen in the correlations between overall risk perceived for crowding hazards and accidents ($r = .461$, $p <$

.01), knowledge of crowding hazards and knowledge of accidents ($r = .422$, $p < .01$), uncontrollability of crowding hazards and uncontrollability of accident ($r = .525$, $p < .01$).

Table 5 *Correlations between qualitative dimensions and overall perceived risk (n = 230)*

	Knowledge	External Dread	Control	Immediacy of Effects	Catastrophe	Internal Dread	Overall Perceived Risk
Knowledge							
External Dread	.115						
Control	.139*	.121					
Immediacy of Effects	.084	-.084	.030				
Catastrophe	.070	.173**	.184**	-.045			
Internal Dread	.111	.371**	-.003	.008	.139*		
Overall Perceived Risk	.062	.070	.298**	.004	.320**	.014	

Note: $p^* < .05$, $p^{**} < .01$

3.4. Multiple Standard Regression Analysis

As a part of the investigation on risk perception in an OMF setting, the sum-scores resulted from the factor analysis were run in the multiple regression analysis (Table 6). The motivation for applying this analysis was due to evaluating how well the model works for predicting the dependent variable (overall perceived risk) and also how much each variable contribute for the prediction. Preliminary analyses were conducted for ensuring no violation of the assumptions of normality, linearity, multicollinearity and homoscedasticity (Pallant, 2011). According to regression analysis, the model explained 16.1% of the variance in perceived risk. Multiple regression analysis also illustrated that the most significant contribute for predicting

risk perception was generated by Catastrophic Outcome (beta coefficient = .274, $p < .001$) and Controllability (beta coefficient = .246, $p < .001$) risk attributes.

Table 6 *Summary of multiple regression analysis for variables predicting perceived risk (n=230)*

Variables	B	SE B	β
Knowledge	.010	.063	.010
External Dread	.005	.078	.004
Controllability	.292	.076	.246***
Immediacy of Effects	.012	.091	.008
Catastrophic Outcome	.315	.073	.274***
Internal Dread	-.065	.157	-.028
R^2	.161***		
R^2 Adjusted	.138***		
F	7.046***		

Note: *** $p < .001$

Apart from the regression analysis conducted on sum-scores of the dependent variable (perceived risk) and independent variables (qualitative dimensions), more in detail regression analyzes were utilized on each hazard's perceived riskiness exploring the contribution of its qualitative attributes as applied by Gardner & Gould (1989).

The highest R^2 values were obtained from perceived riskiness for contagious diseases ($R^2 = .248$), perceived riskiness for crowding hazards ($R^2 = .124$) and perceived riskiness for excessive alcohol consumption ($R^2 = .114$). While catastrophic outcome (beta coefficient = .311,

$p < .001$) was the most important element for predicting riskiness for contagious diseases, the level of perceived uncontrollability was the most important contributor for perceived riskiness of crowding hazards (beta coefficient = .255, $p < .001$) and excessive alcohol consumption (beta coefficient = .256, $p < .001$).

The regression analyses on each hazard's perceived riskiness revealed that the qualitative dimensions were not efficient for predicting the perceived riskiness of accidents ($R^2 = .017$), criminal acts ($R^2 = .097$) and terrorist acts ($R^2 = .013$).

As final analysis, one way ANOVA analysis (Table 7) between groups were conducted for exploring possible perceived risk differences between different accommodation types during the event. However, the results did not yield the required level of significance ($p < .05$) for investigation of multiple comparisons (Pallant, 2011). Accordingly, it can be stated that the style of accommodation did not influence the perceived risk meaningfully.

Table 7 ANOVA for the risk perception according to different accommodation types ($n = 230$)

	Sum of squares	df	Mean square	F
Between groups	6.906	4	1.727	.704*
Within groups	551.967	225	2.453	
Total	558.874	229		

Note: * $p > .05$, therefore comparison analyses are not possible.

3.5. Summary of Qualitative Dimensions

3.5.1. Knowledge Factor

Knowledge attributes of the six hazards did not act as a significant actor for explaining the perceived risk in the OMF. Even though knowledge items showed high reliability and had high factor loadings as presented in Table 4, knowledge in general did not contribute much for

explaining the risk perception according to multiple standard regression and Pearson's coefficient analyses. While the contribution of knowledge factor in the model composed was low (beta coefficient = .010, $p > .05$), knowledge factor also did not correlate with any other attributes neither in sum-score level or item-to-item level which shows the lack of relations to other attributes.

The fact that the lowest rated item was excessive alcohol consumption (mean = 2.63, SD = 1.87) and the highest rated item was unexpectedly terrorist acts (mean = 3.82, SD = 2.29) depicts an exciting profile to discuss.

3.5.2. External Dread Factors

The original dread items, investigating the level of dread for each hazard in a scale increasing from “common” to “dread”, demonstrated variety in the nature of hazards composed. As illustrated in the factor loadings (Table 4), the hazards which are not totally determined through one's preferences (accidents, terror, crowding hazards and criminal acts) loaded significantly to Factor 2; the more internally perceived risks (contagious diseases, excessive alcohol consumption) loaded to Factor 6, separately from the other dread items. This behaviour of the dread items raised questions upon the universality of the dread factor and its validity as construct applicable to every risk study. Another option for explaining this inconsistency of dread factor is the limited number of items presented in the paper.

External Dread Factor was not among the effective factors in the study. The sum-score of the factor correlated significantly low with perceived risk sum-score ($r = .070$, $p > .05$). The only factor that External Dread showed significant correlation to was the Internal Dread Factor (r

= .371, $p < .01$) which is not surprising considering that they were parts of the same construct. The External Dread did not show much presence also in item-to-item correlations.

In the means of predicting power, the External Dread Factor contributed significantly low (beta coefficient = .004, $p > .05$) which mirrors the weakness of the external dread items for capturing the variance in risk perception in an OMF scenario for the composed population.

The mean score examinations revealed that in the scale from common to dread, accidents were rated the lowest (mean = 4.30, SD = 1.96), expressing its commonness of the hazard for the people. From common to dread the following hazards were rated in the order of crowding hazards (mean = 4.57, SD = 1.92), criminal acts (mean = 4.92, SD = 1.96) and terrorist acts (mean = 6.10, SD = 1.80) respectively.

It is a curious issue that the external hazards tended to be rated more dread, than they are rated risky in the given OMF. This inclination is observed between the perceived riskiness (mean = 1.66, SD = 0.95) and perceived dread (mean = 6.10, SD = 1.80) of terrorist acts, perceived riskiness (mean = 3.85, SD = 1.73) and perceived dread (mean = 4.57, SD = 1.92) of crowding hazards and also perceived riskiness (mean = 3.71, SD = 1.65) and perceived dread (mean = 4.92, SD = 1.96) of criminal acts.

3.5.3. Controllability Factor

The perceived uncontrollability of the hazards assisted understanding the risk perception in the OMF significantly. Since the controllability dimension in the survey had negative wording, the dimension was reverse coded for the analyses. Therefore, the results obtained indicate the perceived level of “uncontrollability”.

The controllability items loaded on Factor 3 significantly, except for the controllability of alcohol, which tended to behave differently. Uncontrollability of the hazards achieved contribution for explaining the model (beta coefficient = .246, $p < .001$). Furthermore, the dimension reported meaningful relationship to overall perceived risk in correlation analysis ($r = .298$, $p < .01$) referring that when the perceived uncontrollability increases, the perceived riskiness increases as well. This association mirrors the controllability discussions of optimism bias addressing the inverse relationship between perceived controllability and perceived overall riskiness. For this instance within as an extension of this tendency, the perceived riskiness raised in accordance with perceived uncontrollability. In the item level, the most significant links to perceived uncontrollability are generated by contagious diseases ($r = .378$, $p < .01$), crowding hazards ($r = .315$, $p < .01$) and excessive alcohol consumption ($r = .250$, $p < .01$). These positive relationships between the uncontrollability and perceived riskiness of given hazards stand out for picturing a meaningful level of awareness by the respondents for such characteristic festival hazards.

When the mean ratings of each hazard were investigated, exciting results were obtained as represented in Table 3 previously. While the terrorist acts item was rated as the most uncontrollable (mean = 5.48, SD = 2.07) significantly, it was followed by criminal acts (mean = 4.37, SD = 1.65), crowding hazards (mean = 3.97, SD = 1.72) and accidents (mean = 3.88, SD = 1.52) respectively. The contagious diseases (mean = 3.47, SD = 1.66) and excessive alcohol consumption (mean = 2.49, SD = 1.36) were the items rated as the most “controllable” in the scale.

3.5.4. Immediacy of Effects Factor

Concerned with the latency of the effects of a specific activity or technology (Bronfman et al., 2007), this dimension was not an exciting determinant to investigate for the given case. The factor was unable to make a meaningful contribution for predicting the overall perceived risk in the festival (beta coefficient = .008, $p > .05$). Furthermore, the factor failed to demonstrate relationships with other factors in the Pearson's correlation analysis.

An interesting point about this factor was obtained in the factor analysis. While all controllability items loaded on Factor 3, controllability of alcohol item joined the immediacy of effect items on Factor 4, which was labeled Immediacy of Effects Factor. This tendency of controllability and immediacy of effects items loading to same factor was reported before in other scientific papers (e.g. Bronfman, Cifuentes, DeKay, & Willis, 2004), proposing a relationship between the latency of effects and perceived uncontrollability of a hazard for the exposed population.

According to the mean ratings, crowding hazards were the ones perceived most immediate in the effect (mean = 1.51, SD = 0.91), followed by the equally rated two items: accidents (mean = 1.70, SD = 1.06) and terrorist attacks (mean = 1.70, SD = 1.19) respectively. Concerning the nature of the hazards, these means are very suitable for common sense. Not surprisingly, contagious diseases were rated as the latest in effects (mean = 5.06, SD = 1.77), designating the perceived late effects of the diseases.

Another significant issue in the immediacy of effects factor was the excessive alcohol consumption ratings. The participants indicated a low rating (mean = 2.87, SD = 1.57) for the alcohol item which refers to a rather immediate influence of alcohol. This result bears

importance for indicating the short-term risk perception of Norwegian teens' for intoxication, ignoring the long-term risks which are later to appear such as major health problems deriving from it.

3.5.5. Catastrophic Outcome Factor

Of the six factors composed for investigating risk perception in an OMF setting, catastrophic outcomes factor was the most significant determinant by far. The factor achieved the strongest correlation with overall perceived risk ($r = .320$, $p < .01$), while also providing the highest input for predicting the perceived risk in an OMF scenario (beta coefficient = $.274$, $p < .001$). As expressed previously in correlations chapter, the catastrophic outcome items marked some important associations between perceived risk of contagious diseases and catastrophic outcome of contagious diseases ($r = .357$, $p < .01$), perceived risk of crowding hazards and catastrophic outcome of crowding hazards ($r = .247$, $p < .01$) and also perceived risk of criminal acts and catastrophic outcome of criminal acts ($r = .246$, $p < .01$).

The mean ratings have demonstrated that terrorist acts (mean = 5.90 , $SD = 1.89$) and contagious diseases (mean = 5.43 , $SD = 1.80$) were the two hazards perceived the most catastrophic as expected. Crowding hazards item was also rated significantly (mean = 4.58 , $SD = 1.93$).

3.5.6. Internal Dread Factor

The last factor formed after the factor analysis; the Internal Dread Factor was one of the inefficient factors for understanding the perceived risk in a festival setting. The factor explained the lowest variable (4.8%) amongst the six extracted factors. The reason for including the factor to the study was due to the two important items it consists of: perceived dread for contagious

diseases and perceived dread for excessive alcohol consumption, which are essential for both Psychometric Paradigm's main discussions and the industry.

While the factor was incapable of associating with perceived risk both in sum-score and item level, it also did not contribute much for predicting perceived risk level (beta coefficient = -0.28, $p > .05$). Nevertheless, the factor has achieved a unique aid by demonstrating how differently the six festival hazards' dread potential is evaluated by the respondents. As presented in Table 4, while more externally effective hazards loaded on Factor 2, only the dread for contagious diseases and excessive alcohol consumption loaded heavily on Factor 6. This tendency caught attention for indicating the perception alteration for the hazards that are more "internal" and interpreted as more *controllable* by the individual. Hence, it is vital to highlight the prominence of perceived controllability of hazards in an OMF.

4. Discussion

4.1. Overall Riskiness and Heuristics

According to the mean ratings, the most risky perceived hazard was surprisingly excessive alcohol consumption, followed by contagious diseases, crowding hazards, criminal acts, accidents and terrorist acts respectively. The risk ranking of hazards illustrated that the population behaved probabilistically correct and did not rate the more vivid hazards as more risky as Psychometric Paradigm asserts. In addition, the responses have demonstrated that there are no significant risk perception differences regarding the accommodation style.

4.1.1. The Mean Ratings

The results have revealed that none of the hazards were rated as risky; even the most risky perceived hazard, excessive alcohol consumption, was rated as moderate risky. This overall low trend of the perceived riskiness in the responses can be attributed to different aspects of the population.

One of the explanations for receiving low risk levels in this research may be the average age of chosen population. Quadrel, Fischhoff, & Davis (1993) remark the illusionary invulnerability of adolescents resulting in general low risk perceptions. Furthermore, regarding the adolescent risk perception, it is proposed that the adolescents who are exposed to risky activities frequently (e.g. intoxication), may perceive the risks as less threatening than they actually are (Benthin et al., 1993), which is an aspect directly linked to this study.

Alternatively, the overall low risk ratings of the study can be investigated within a trust to organization framework, since trust is a very important determinant for perceived risk (Siegrist & Cvetkovich, 2000). This context carries more meaning when applied in a Norwegian population, which is based upon high level of trust (Christensen, Lægreid, & Rykkja, 2013). This phenomenon can be observed within qualitative dimensions' ratings as well, especially in External Dread Factor. The external hazards were rated on average not very risky, but as in the terror example, as outstandingly dread, which can be due to the respondents' trust to Norwegian government and also to the Landstreff organization: the participants have demonstrated even though the presented hazards are something to have dread for, they are not likely to come across in the given event.

4.1.2. Probabilistic Estimations of Risks and Employment of Heuristics

One of the key discussions of Psychometric Paradigm Model is based on the vividness of a hazard as expressed in previous chapter. According to this perspective people tend to overestimate the risks of hazards which are more sensational and vivid (Lichtenstein et al., 1978) such as terrorism. Nevertheless, the results obtained from this research have demonstrated that excessive alcohol consumption and contagious diseases, which can be marked as ‘quiet killers’ due to their non-sensational nature as Lichtenstein et al. (1978) discuss, were rated as the two most risky hazards on top of more vivid hazards such as terror or criminal acts. Therefore, it is clear that the participants did not act probabilistically unreasonable as Psychometric Paradigm suggests, since experiencing troubles due to intoxication is more probable than facing a terrorist attack in an OMF setting.

This inclination of rating two quiet killers (excessive alcohol consumption and contagious diseases) as more risky than sensational hazards opens Tversky & Kahneman’s (1973) Availability Heuristic and Kasperson et al.’s (1988) Social Amplification of Risks Framework for debate as well. It is of great interest, how *sensational* hazards that receive more media coverage were out-rated by excessive alcohol consumption and contagious diseases. Perhaps the answer lies again in the exceptional trust that Norwegian people place in their society, organizations and state (Christensen, Lægreid, & Rykkja, 2013), which may decrease the perceived risk for terrorist, crowding hazards and criminal acts.

An essential issue to mention regarding the probabilistically not biased responses, such as contagious diseases, is the influence of right communication channels used by the authorities; since it is observed that efficient information do change the risk perceptions of public (Nielsen, Elstein, Gyrd-Hansen, Kildemoes, Kristiansen, & Støvring, 2010). Regarding this argument, the

reasons behind the response pattern in this study can be examined within successful risk communication of Norwegian government bodies and non-governmental organizations.

The successful risk communication discussions can be applied to excessive alcohol consumption item for sure. Alcohol consumption was selected for investigating *affect heuristic* discussion of the model, which addresses that people tend to get biased and perceive less risks, when evaluating risks for the activities they like (Alhakami & Slovic, 1994). However, in this survey there was an obvious awareness towards risks of intoxication, which evaluated excessive alcohol consumption as even riskier than criminal acts. This inclination can be interpreted as a significant indicator of the rising alcohol awareness in Norway in the last decade. Starting from 2004, Norwegian Directorate of Health started a campaign for increasing the alcohol awareness within country, which turned out to be quite a success through the prohibitions and media support, leading to changes in beliefs towards alcohol throughout Norway (Storvoll, Rossow, & Rise, 2013).

While the awareness for alcohol reported by the Norwegian adolescents can be attributed to Norwegian government's activities in the recent years as denoted, the risk level indicated for contagious diseases is even harder to explain. For understanding this trend, a Norwegian media channels "search" investigation was utilized. As the Social Amplification Framework asserts, the engines generated much more results concerning "terror" (2190 results from Aftenbladet, 6660 results from NRK) than contagious diseases (66 results from Aftenbladet, 1040 results from NRK). When the investigation was applied only for the years 2012 and 2013 the results do not differ much in the means of ratio, terror still was more amplified than contagious diseases. Of course, this very limited investigation is far from being a concrete proof for social amplification, nevertheless, it do eliminate the media option for explaining why contagious diseases being more

available than terror in people's mind. The reason that, contagious diseases managed to evoke interest within the answers can be examined as an intersection of Norwegian youth's life-style in which sex is not seen as a taboo as seen in the knot-lists, overall quality of education and risk communication by the state organizations.

On the other hand, the fact that the most sensational hazard, terrorist acts, was rated as the least risky is another significant result of the paper. This unexpected finding regarding terrorist acts might be due to several reasons. The theory that asserts that people have a tendency to get over the dramatic events of terror in a short period of time (Fischhoff et al., 2005; Larsen et al., 2011) can be one of the factors. Another rationale for the reaction given to terror item in the survey, may have been derived from the arguments addressing that the terror in Norway was an exceptional, one-time incident, nevertheless, it should be taken into consideration that, with the strong presence of culturally racist political parties, Nordic terrorism is not an exceptional issue anymore (Mulinari & Neergaard, 2012; Åsberg, Rönnblom, & Koobak, 2012).

4.1.3. Excessive Alcohol Consumption's Relation to Other Hazards

One of the central issues presented in this paper was the excessive alcohol consumption's role in an OMF setting. Apart from being the most risky perceived hazard of the study, the item illustrated meaningful relationship to other hazards such as risk of accidents, contagious diseases and criminal acts, as documented previously in the correlations chapter.

This trend might be designating a safety weakness observed in the festival due to alcohol driven hazards. Also it bears importance for pointing at the awareness of the population towards intoxication's riskiness once more. Nevertheless, concerning that answering a hypothetical questionnaire and evaluating the risks in a festival when alcohol is present are two very different

situations, one cannot assert that the respondents did not engage in risk-taking behaviours during the festival according to the answers.

4.2. The Influence of Controllability for Risk Perception

The level of perceived control was one of the most important predictors of risk together with Catastrophic Outcome according to the data. Furthermore, apart from predicting the overall perceived risk, the controllability items contributed to the study by revealing significant associations between items. The importance of perceived controllability while perceiving risks of a certain hazard was also observed in the breaking of Dread Factor into two; where more personal controllable and non-controllable items loaded on to different factors.

One of the research questions of this very study is concerned about the proposed relationship between the perceived riskiness and perceived controllability as optimism bias theories assert. It is crucial to address that this study is not set to measure optimism bias, and that the arguments of optimism bias are used just as a guideline for understanding how controllability and risk reacts.

Significant positive correlations between perceived *uncontrollability* and perceived risk were reported supporting the optimism bias argument. The respondents have demonstrated when the level of perceived uncontrollability increases, the perceived risk increases as well and vice versa, when the level of perceived uncontrollability decreases, the perceived level of riskiness decreases as well. Considering that controllability was measured on a Likert scale ranging from no personal control to total personal control, the correlation also mirrors that when perceived control decreases (perceived uncontrollability increases), the perceived risk increases, which is related to optimism bias's controllability arguments (e.g. McKenna, 1993).

As expected, the most controllable rated item was excessive alcohol consumption. It is vital to denote that, even though the riskiness indicated is in a moderate level in the scale composed, it was also the most risky item according to the audience.

The fact that the mean ratings of perceived control and riskiness items did not support the correlations designating traces of optimism bias points at a contrast. A similar contradiction regarding the perceived control was reported by Benthin et al. (1993) in their research focusing on risk perception of adolescents from a psychometric perspective; the respondents rated the most controllable risks also as not possible to avoid. The authors explained this complex relationship between perceived control and being unable to avoid – or risky in our case- to the peer pressure which is hard to resist (Benthin et al., 1993). Applying this phenomenon to the results obtained, it may be accurate to propose that the adolescents attending the event perceived the intoxication as personally controllable, nevertheless, they tended to rate it as risky since they knew intoxication would take place concerning Landstreff is a Russ event, where drinking is almost like a social norm.

Taking into consideration that this study does not contain a full measurement of optimism bias, it is difficult to label the participants as optimistically biased. Nevertheless, concerning the indicated high level of controllability of intoxication, which is a tendency observed in adolescents (Quadrel et al., 1993), the presence of illusionary invulnerability is worth to investigate by the authorities considering its strict connection to negligence of pre-cautious behaviour (Caponecchia, 2010).

4.3. Knowledge and Risk Perception

Strangely enough, the level of knowledge for specific hazards was considered to be one of the most important qualitative attribute of the early Psychometric Paradigm studies (e.g. Fischhoff et al., 1978) along with Dread Risk dimension, resulting in a two factor solution as presented previously in Figure 1.

The inadequacy of knowledge factor for determining the perceived risk level for the selected hazards in this study may be due to the difference in content. While most of the psychometric based risk perception studies investigated people's perception of technological or environmental hazards for which ordinary people's knowledge tend to be low (Miller, 1998) and accordingly, this phenomenon increases the perceived level of risk (Beck, 1992). However, the risks presented in this research are relatively more known risks to people when compared to hazards like DNA studies or nuclear waste. Therefore, the hazards included in this paper, might not have been evaluated efficiently in the means of riskiness based upon the knowledge associated with them. This reasoning, based on perceived high knowledge for the six hazards, did not reflect in the mean scores of knowledge items, which were rated mostly low ranging between 2.63 to 3.82. Nevertheless, since there were no technological or environmental hazards in the study together with festival specific hazards, comparing and disproving the suggestion for the insufficiency of the factor is not possible.

It is of interest that the terrorist acts hazard, which was rated significantly low by the respondent for overall perceived risk was also the one which was considered to be the most known one. This tendency of rating terrorist acts as more "known" might be due to Norway's almost recent experience with terror. In addition, Norwegian teens' respond indicating the terror as the least risky points at a huge contrast to Psychometric Paradigm's mentioned availability

heuristic, social amplification of risk framework and biased probability estimation of ordinary people discussions.

The placement of excessive alcohol consumption in the knowledge scale is another curious issue to be looked at. The fact that excessive alcohol consumption was rated as the least known in knowledge attribute, and as the most risky in overall riskiness scale, calls for a closer look. While this response indicates a level of awareness to the hazardous consequences of intoxication in mass gatherings, it also reflects a need for information in order to raise the knowledge regarding the hazard.

Even though the correlations between knowledge and risk perception did not reflect any meaningful relationship, the mentioned inverse ratings of knowledge and perceived risk partially support the argument of Psychometric Paradigm asserting that unknown is perceived as more risky (Slovic & Weber, 2002). However, a more important aspect of the general low ratings of the knowledge scale is that it points at a field where more attention by the authorities should be given to.

4.4. Important Aspects for the Theory

Except for the traces of optimism bias reporting illusionary control captured in the results, the very reasonable answers obtained from the data provides basis for criticizing the “lay people” discussions of the early Psychometric Paradigm as Marris et al. (1998) asserts. It can be argued that with the influence of experiences, social stimuli (Marris et al., 1998) and media influence (Boholm, 1998), the way “lay people” are expected to behave have shifted from being unreasonable to fairly logical in time. The findings also supported Sjöberg’s (2002b) arguments

highlighting that ‘lay-people vs. experts’ differences are not always present according to the content of risk field.

In relation to ‘lay people vs. expert’ discussions, Rowe & Wright (2001) propose that the nature of the sample bears importance for determining the difference between the two groups’ approaches toward risk. Regarding the probabilistically unbiased responses generated from the questionnaire, the sample’s attributes concerning the high stimuli applied on them about intoxication by the state, the highlighted trust issue and the general high quality education system in Norway, this logical way of reasoning demonstrated by the population falls in place.

The low value of R^2 was a curious outcome, considering early Psychometric studies yielded around 50% - 61% prediction (Willis et al., 2005). This inclination can be attributed to the limited number of hazards presented in the study and the inadequacy of standardized risk dimensions for a festival scenario. In order to overcome this problem, more sensitive, festival-tailored scales with more hazards should be developed, for capturing more variety in such a young and interesting population.

Another contradiction to the original theory was observed in the factor analysis where the constructs broke into two different factors. This behaviour of the items composing the constructs begs the question whether the standard dimensions utilized are applicable universally.

To sum up, the research has revealed a significant fact by indicating that the assumptions of Psychometric Paradigm cannot be hold for every population and situation. This can also be due to the information age we are living in and the trend that people are transforming in the way they believe and act, leading the line between experts and lay people to disappear as Marris et al. (1998) address. Nevertheless, in this young Norwegian sample the biggest share of the reported

low risk levels can be attributed to the very special traits of the society, successful risk communication within country and the low risk perception attitudes of youth in general.

4.5. Lessons for the Festival Industry

The findings of the study generated important aspects for festival managers. To begin with, since none of the items were rated as significantly risky and even the highest mean ratings were clustered in middle points, it is accurate to express that the overall safety of the event was evaluated positively by the respondents. When the items are investigated individually crucial points for festival safety are observed.

4.5.1. Excessive Alcohol Consumption

One of the most curious items was the excessive alcohol consumption which is already highlighted in previous chapter. Nevertheless, apart from its role in the theoretical model, the item's ratings and correlations reflects practical significance as well. The fact that intoxication was rated as the most risky hazard can be interpreted as a sign for the general *intention* to get drunk during the event as expected from a Russ event according to the previously explained nature of Russefeiring. Concerning this intoxication tendency mirrored in the responses, the festival managers should give special attention to the intoxication problem through strict monitoring and perhaps raising the number of volunteers for "intoxication watch" since it can lead to other hazards such as criminal acts or accidents as indicated by the correlations.

4.5.2. Contagious Diseases

The second most risky rated item, contagious diseases, is another vital issue to be looked at. Even though the population have demonstrated an unexpected awareness towards the item, it does not necessarily mean that it receives the necessary attention from the respondents. As

reported in the cognitive map based on Knowledge and Controllability (Figure 2), contagious diseases are located in a spot where knowledge is low and perceived controllability is rather high, alarming for negligence by participants.

Furthermore, the fact that it was rated to be also fairly ‘controllable’ as a sign of optimism bias, the respondents do not seem to have evaluated the probability of getting infected in a mass gathering where common toilets are used by thousands and unsafe sex takes place due to intoxication. Since contagious diseases hazard is something which is very difficult for the organisation to have some control over, the cautions are very limited. Ensuring the hygiene and providing free condom spots can be the initial solutions. However, regarding the prominence of risk communication (Frewer, 2004), the use of correct risk communication channels are the long-term and most efficient answers for overcoming this kind of biases in risk perception.

4.5.3. Accidents

Parallel to Sjöberg et al.’s (2005) findings, accidents were one of the most overlooked hazards in the study. The general risk level indicated for accidents (mean = 3.18, SD = 1.48) was second lowest following the terrorist acts, which indicates the negligence highlighted by Sjöberg et al. (2005). According to the stressed relationship between excessive alcohol consumption and accidents demonstrated by the participants, it is of vital importance to prevent possible accidents which may lead to serious medical trauma by placing the equipment with extreme care and watch the seriously intoxicated participants closely for stopping them from hurting themselves or others. This issue should not be neglected by the festival organisations as it was in participants’ responses, regarding that even in a non-volatile, non-hostile crowd, 1-2 % of the attendees are expected to receive first aid per day (Hines, 2000). When this number is applied to the rather huge number of attendees and the number of days the event takes place it is clear that, with the

assistance of excessive alcohol consumption, there will be many cases seeking medical assistance due to accidents.

4.5.4. Crowding Hazards

An essential item for the study, the crowding hazards, was not as effective as expected according to the answers; the item was placed in the middle ranks in almost every dimension (except for immediacy of effects). Nevertheless, since none of the hazards were evaluated as highly risky, it is accurate to say that crowding hazards were undermined by the participants.

It is a controversial issue if crowding hazards should be examined as neglected or overestimated. One can judge it as generally overestimated due to its sensational nature, nevertheless, as presented in Table 2, the former tragic experiences, the content and population of the event, it actually is never “too overestimated” nor “off the table”. Moreover, concerning the placement of crowding hazards in the cognitive map based upon catastrophic outcome and controllability (Figure 3), it is accurate to express that the population obviously underestimates the destructive power of crowding hazards.

An important point to mention is the previously documented link between accidents and crowding hazards according to the participants. This trend may signal a lack of information and unawareness that is evaluating accidents and crowding hazards, which can be lethal for a large amount of people, in the same way calling special attention of the festival managers.

As discussed earlier, perhaps these tendencies of wrong evaluation or undermining of crowding hazards might have been observed due to Landstreff’s clean history regarding the crowding hazards and “trust” to the organisation, nevertheless more attention should be directed to the issue for raising awareness.

4.5.5. Criminal Acts

The reaction for the criminal acts was of special interest due to the unfortunate rape cases (Kristoffersen, 2013b) took place during the festival. Even though, criminal acts was placed after intoxication and contagious diseases in perceived overall risk, the participants demonstrated significant awareness towards the item by relatively high ratings (mean = 3.71, SD = 1.65). Apart from the overall perceived riskiness of the criminal acts, the item scored high values also in qualitative dimensions. It was also highly rated as dread (mean = 4.92, SD = 1.96), uncontrollable (mean = 4.27, SD = 1.65) and catastrophic (mean = 4.14, SD = 1.82). Bearing in mind that the survey took place during the rape incidents were heavily covered by the Norwegian media, there might be “availability heuristic” and “social amplification” impacts reflected in the answers. Nonetheless, in any case, together with the alcohol and crime relationship illustrated by the participants; these high rating of the crime item should be given attention by the festival managers considering the safety of the attendees and the public image of the event.

4.5.6. Terrorist Acts

Terrorist acts item have shown that, the risk of terror is not seen as a threat by the Norwegian teens attending a mass gathering. As discussed earlier, even though the item scored high on the qualitative dimensions, it was scored to be irrelevant for a Norwegian OMF, highlighting the high levels of trust to the authorities and evaluating the former tragic experience as a one-time incident. Nevertheless, this tendency of perceiving “no risk at all” for terror in mass gatherings also calls for attention since terrorism is unlikely to disappear around the world (Korstanje & Clayton, 2012) and also in Nordic countries (Mulinari & Neergaard, 2012; Åsberg, Rönnblom, & Koobak, 2012).

The fact that Norwegian teenagers saw themselves as very well informed about terrorist acts, and rated the item as the most known hazard is an interesting issue to look at for sector professionals and related government bodies. This phenomenon raises the questions if they have a general idea about the risk, if they have adequate information and do they really understand that certain risks may apply to them individually (Benthin et al., 1993).

Even though the respondents showed probabilistically correct risk perception levels by seeing terror as less risky than other hazards, putting it totally off the table is also another form of unawareness. One should not forget that festival safety cautions can only protect people to some extent and that much of the confidence in safety may lead to eyes being closed to obviously suspicious acts around.

5. Conclusion

The results have illustrated that the young audience composing the sample perceived catastrophic outcome and uncontrollability as the most crucial elements of risk in a mass gathering OMF. Surprisingly, the perceived risk levels did not differentiate meaningfully according to the accommodation style chosen.

According to the mean ratings; the most risky perceived hazard was excessive alcohol consumption, followed by contagious diseases, crowding hazards, criminal acts, accidents and terrorist acts respectively. Most of the main discussions of Psychometric Paradigm were denied by the population designating probabilistically unbiased risk estimation substantially; the only exception was the relatively low ratings of accidents, pointing to negligence (Sjöberg et al., 2005).

The participants did not seem to be influenced by vividness nor favourability of a hazard while evaluating the risks, which brought down the availability heuristic and affect heuristic arguments of Psychometric Paradigm, suggesting that these biases cannot be held universally for all populations. These aspects supported Marris et al.'s (1998) discussions asserting that the 'lay people' approach in risk research are out dated for this time and age.

An exciting fact revealed by the data was the relationship between perceived control and perceived risk. Even though the research was not set to measure optimism bias, traces of optimism bias were captured through the positive relationship between perceived uncontrollability and perceived risk (Harris, 1996; McKenna, 1993). This inclination bears much importance considering the previously explained inverse association of pre-cautious behaviour and optimism bias (Caponecchia, 2010; Jenkin, 2006), implying possible pre-caution negligence by audience.

On the other hand, the discussion of Psychometric Paradigm addressing the "unknown" hazards being perceived as more risky was supported by the data, pointing to an important phenomenon for both the sector and governmental bodies for choosing the right communication channels to overcome the information gap.

Apart from the theoretical angle, the research has mirrored significant messages for the sector as well. The associations demonstrated between intoxication, crime and crowding hazards may be interpreted as a safety weakness perception in these areas. Furthermore, the reflected *intention* of intoxication in the responses calls for more interest.

On the other hand, trust for the authorities was observed across responses for items like terrorist acts and crowding hazards. Even though these hazards were rated as highly dreadful and

catastrophic, the risk attached to them for the given event was relatively low, implying that the audience does not think they are likely to happen.

In conclusion, the current study managed to reveal some noteworthy risk perception elements for OMFs hosting young populations in Norway. The population depicted an exceptional picture due to the average age, special traits of Norwegian society and state. In order to capture a more comprehensive and detailed profile of this exciting group, new studies should be conducted with more hazards and festival-tailored risk dimensions.

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Appendices

Appendix A: Questionnaire

Please indicate how risky you think the below hazards to face in Landstreff Stavanger 2013?	1 = No risk at all 7 = Great risk
Contagious diseases	1 2 3 4 5 6 7
Excessive alcohol consumption	1 2 3 4 5 6 7
Accidents	1 2 3 4 5 6 7
Crowding Hazards	1 2 3 4 5 6 7
Criminal Acts	1 2 3 4 5 6 7
Terrorist Acts	1 2 3 4 5 6 7

How much do you know about the hazards listed below?	1 = Very well informed 7 = No knowledge at all
Contagious diseases	1 2 3 4 5 6 7
Excessive alcohol consumption	1 2 3 4 5 6 7
Accidents	1 2 3 4 5 6 7
Crowding Hazards	1 2 3 4 5 6 7
Criminal Acts	1 2 3 4 5 6 7
Terrorist Acts	1 2 3 4 5 6 7

How much personal control do you think you have over the hazards below that you can face during the event?	1 = no personal control 7 = full personal control
Contagious diseases	1 2 3 4 5 6 7
Excessive alcohol consumption	1 2 3 4 5 6 7
Accidents	1 2 3 4 5 6 7
Crowding Hazards	1 2 3 4 5 6 7
Criminal Acts	1 2 3 4 5 6 7
Terrorist Acts	1 2 3 4 5 6 7

Are the presented risks below things people have learnt to live with (common) or are they something people have great dread for?	1 = learnt to live with (common) 7 = dread
Contagious diseases	1 2 3 4 5 6 7
Excessive alcohol consumption	1 2 3 4 5 6 7
Accidents	1 2 3 4 5 6 7
Crowding Hazards	1 2 3 4 5 6 7
Criminal Acts	1 2 3 4 5 6 7
Terrorist Acts	1 2 3 4 5 6 7

Do you think the hazards below kill a lot of people at once (catastrophic), or do they kill people one at a time (chronic)?	1 = one person at a time (chronic) 7 = many people at once (catastrophic)
Contagious diseases	1 2 3 4 5 6 7
Excessive alcohol consumption	1 2 3 4 5 6 7
Accidents	1 2 3 4 5 6 7
Crowding Hazards	1 2 3 4 5 6 7
Criminal Acts	1 2 3 4 5 6 7
Terrorist Acts	1 2 3 4 5 6 7

To what extent do you think the effects of the given hazards are immediate?	1 = immediate effect 7 = very late effects
Contagious diseases	1 2 3 4 5 6 7
Excessive alcohol consumption	1 2 3 4 5 6 7
Accidents	1 2 3 4 5 6 7
Crowding Hazards	1 2 3 4 5 6 7
Criminal Acts	1 2 3 4 5 6 7
Terrorist Acts	1 2 3 4 5 6 7